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probably covered: and even if it were not concealed it would transmit no current of air inwardly unless the tide were going out, which he thinks was not the case. At the time Higgins was there the weather was perfectly calm, not a breath of wind stirring; consequently, the influx of air must have been occasioned by the descent of the surface of water within: on the other hand, when the water rises the air must rush out. This cavern therefore may be said to respire like an animal; the rise and fall of the tide acting as a diaphragm, and the above-mentioned narrow passage as a breathing hole. Jeremiah Higgins also heard the story of the young chief and his mistress, which perfectly accorded in all the material points with what is told above: it appears from his narration as well as from Mr. Mariner's, that the natives give this account of the two lovers as a piece of true history, not a romance. There is a sort of shelf at the farther end of the cavern and high up, which is pointed out as having been used for a bed-place.

Finow and his party having finished their cava, dived out of the cavern, and resumed their proper dress: after which they proceeded across the country, and got into the public roads, to amuse themselves with the sport of shooting rats. These animals are not so large

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as in our parts of the world, but rather between the size of a mouse and a rat, and much of the same colour: they live chiefly upon such vegetable substances as sugar-cane, bread-fruit, &c.: they constitute an article of food with the lower orders of people, but who are not allowed to make a sport of shooting them, this privilege being reserved for chiefs, matabooles, and mooas *. The plan and regulations of the game of *fanna gooma* (rat-shooting) are as follow.

A party of chiefs and others having resolved to go rat-shooting, some of their attendants are ordered to procure and roast some cocoa-nut, which being done, and the chiefs having informed them what road they mean to take, they proceed along the appointed road, chewing the roasted nut very finely as they go, and spitting, or rather blowing, a little of it at a time out of their mouths with considerable force, but so as not to scatter the particles far from each other; for if they were widely distributed, the rat would not be tempted to stop and pick them up, and if the pieces were too large, he would run away with one piece instead of stopping to eat his fill. The bait is thus distributed, at moderate distances, on each side of the road,

* For a description of these ranks in society, see the subject in the second volume.

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gination can well conceive, and constituting a species of scenery, which, in proportion as it is more rare, is more admired by the natives. To this retired spot you proceed along a road which runs through the whole length of the plantation, till you arrive at a thick wood of *tamanoo* and *toa* trees, situated on a very steep descent, down which the road becomes a narrow path, winding from side to side, and beset on either hand with the *myíle* and *jiále*, and other shrubs, planted by the liberal hand of nature, whose variegated flowers perfume the air with the most delightful aromatic fragrance; whilst, from the lofty branches of the trees, the ear is soothed with the soft and plaintive voice of the wood-pigeon calling to his mate. Having proceeded with slow and lingering step along this winding path, for about five hundred yards, a flat plantation of cocoa-nut trees presents itself, through which, at a little distance, a beautiful prospect of the sea suddenly bursts upon the view. On each side a steep and lofty ridge of rocks, in the form of a crescent, extends into the water, forming a sort of bay. The ridge of rocks on the left hand are, for the most part, the highest, but, at the termination of that on the right, one, loftier than the rest, extends upwards to a great height, like the turret of some ancient battlement.

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cocoa-nut trees in abundance; the soil is also highly favourable for the cultivation of yams, which grow there larger than in most other places. The water which terminates it at one end is noted for the vast abundance of a peculiar fish which resort to the shores of Vavaoo about the month of July. This fish they call *Ooloo Caoo*, and is about the size of the common sprat, and of much the same shape and hue. The common people consider it a great delicacy, but there is considerable danger of being poisoned by eating them promiscuously, for here and there is found one which, on eating, produces the most alarming and sometimes the most fatal effects*; and as there is no mark by which these poisonous ones may be known, it is always dangerous to eat of them, unless they be procured in the rocky bay of this plantation, where, they say, they never found any poisonous, and therefore partake of them without any reserve: the chiefs however seldom touch them, unless perhaps there is a scarcity of other fish. The time when they are best and in the greatest plenty is in the latter end of the

* The symptoms produced are headach, nausea, vomiting, and diarrhœa, with violent pains in the bowels, to which death generally succeeds in the course of four or five hours. The only remedy they use (which very seldom succeeds) is to cause the patient to drink abundantly of water, or, what is considered still better, the milk of young cocoa-nuts.

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heavily of its scarcity; and what renders the matter still worse for them, is, that the Fiji people, demanding a greater number of axes and chisels for a given quantity of the wood, these implements are growing very scarce at the Tonga islands, and plentiful at Fiji. Before the Tonga people acquired iron implements, they usually gave whales' teeth, gnatoo, mats for sails, and platt; but whales' teeth are exceedingly scarce, and the other articles are too bulky for ready exportation. The *sting* of the fish called stingray was also occasionally given, but these *stings*, which they use for the points of spears, are by no means plentiful. This fish is found in the greatest quantity at an island called Ooea, which lies about mid-way between Vavaoo and Hamoa. Another article of exchange is a peculiar species of shell, which they find only at Vavaoo, and is also scarce. It has already been remarked that the sandal-wood tree will not bear to be transplanted to Tonga.

During the time Cow Mooala was at Pau, a vessel was wrecked on a reef off that island. All the crew, except a couple, perished. The wreck was taken possession of by the natives; they got out of her a number of dollars, and a quantity of muslins, with some other East India commodities. From these circumstances it would appear that she was an American smuggler on

4: Gifford E-4,5 (1920-1921) 1923 OU9 Tonga OU9

103 **Anaotua.** Cave of the god [ana, cave; otua, god]. Cave near Toula, village on Vavau island (V).

Anapekapeka. Cave of the swifts [ana, cave; pekapeka, swift (Collocalia spodiopyga)]. Cave near Nakolo, village on Tongatabu island (T). Inhabited by swifts, vernacularly called swallows by English-speaking residents of Tonga. Also cave on Kapa island (V). The famous Swallows' Cave, visited by tourists.

Anapoutaha. Cave of one pillar [ana, cave; pou, pillar; taha, one]. Cave near Maufanga, village on Tongatabu island (T). A stalactite and a stalagmite in the cave have united, forming a single pillar.

Anapu. Cave of bad words [ana, cave; pu, bad word]. Tract on Ovaka island (V).

Anapulou. Veiled cave [ana, cave; pulou, to veil or cover the face]. Cave on Tongatabu island (T). On weather shore.

Anapupu. Cave of long-continued sound [ana, cave; pupu, long-continued sound]. Cave on Vavau island (V). In this cave can be heard the roar of the underground stream Utukalongalu.

Anapusi. Cat cave [ana, cave; pusi, cat]. Cave near Maufanga, village on Tongatabu island (T).

Anasisilea. Cave of speaking commands [ana, cave; sisi, to command; lea, to speak]. Tract on Ofu island (V).

Anasisipa. Cave of the sound of commands [ana, cave; sisi, to command; pa, sound]. Tract on Ofu island (V).

Anatatangi. Cave of tinkling [ana, cave; tatangi, to tinkle]. Cemetery near Koulo, village on Lifuka island (H).

Anateiea. Cave of the dreary passage [ana, cave; teiea, dreary passage] Cave on Tongatabu island (T). On the weather shore.

Anatofa. Cave of sleep [ana, cave; tofa, sleep (used only to chiefs)]. Tract near Utulau, village on Tongatabu island (T).

Anatuli. Cave of the deaf [ana, cave; tuli, deaf]. Cave near Ohonua, village on Eua island (T).

Anauha. Cave of the rain [ana, cave; uha, rain]. Tract on Ovaka island (V).

Anaumata. Cave of the rainbow [ana, cave; umata, rainbow]. Cave on Tongatabu island (T). On the weather shore.

Anaupa. Cave of the resounding report [ana, cave; u, to sound; pa, a report]. Tract near Lolotelie, village on Tongatabu island (T).

Ano. Lake, pool, marsh. Tracts near villages on Tongatabu island (T): near Ahau, Fatai, in Nukualofa, near Maufanga—Fakafanua, landlord, Folaha, and Lolotelie. Also tract on Kotu island (H). Also tract on Haafeva island (H)—Tuuhetoka, landlord. Also tract on Niniva island (H). Also tract on Ofolanga island (H). Also tract near Uiha, village on Uiha island (H)—Malupo, landlord; also tract, district and old village near Lotofoa, village on Foa island (H). Also district near Fotua, village on Foa island (H). Also tract near Pukotala, village on Haano island (H)—Tui Haangana, landlord. Also tract on Ofu island (V)—Tui Lakepa, landlord. Also tract near Vakataumai, village on Kapa island (V). Also tract near Faleval, village on Kapa island (V). Also lake near Tuanuku, village on Vavau island (V). Also tract near Makave, village on Vavau island (V)—Tui Afitu, landlord.

Anoapi. Marshy tract [ano, marsh; api, tract]. Tract on Ofolanga island (H).

Anoava. Lake of the ava fish [ano, lake; ava, a fish resembling the salmon]. Lake on Nomuka island (H). The ava fish is said to be peculiar to the lake, which is named after it. [136]

Anohaamea. Pool of Haamea [ano, pool; Haamea, a district in the vicinity of Fatai, central Tongatabu]. Tract on Nomuka island (H).

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8. Two copies of the text read *Pea mou o ne, o folaue;* I know no meaning for *ne* in this position, and a very intelligent Tongan emended it to *pe*.

9. It is not clear whether pray (*lotu*) is used in the Christian sense, or whether some supplication to heathen deities is meant. Mamaeaepoto lived into the Christian period.

10. Here is a sting. Ostensibly the meaning is that when affairs are all settled in the country and it is easy for all the leading men to go away on an excursion of pleasure, then "we shall go away with you on a trip." Secondarily, there is the sense that "we shall pick nice calm weather for a chap like you, who is not much of a man." Mamaeaepoto retorts that the day was a good sailing day, and secondarily, that there were not difficulties anywhere in the country that necessitated his staying.

11. Although these lines have been taken as the pretext and consolatory remarks made to Mamaeaepoto when he was left behind, it is quite possible to understand them as perfectly sincere remarks addressed by Mamaeaepoto to his companions in misfortune.

12. The word *fasi* (song, tune), stands in the margin of my copy of the poem in several places, apparently a direction for the performance of the piece. It stands opposite the lines which have *e* at the end. It is difficult to say what, precisely, is intended. Perhaps the bard recited the greater part of the poem, and a chorus joined in on the lines indicated.

13. Fusi is probably the name of a man; Fusi-momoho is the name of a boat.

14. Drums were carried on canoes, and beaten as they left, or drew near to, land, and also at other times to cheer and encourage the crews.

Pages 71-72. A poem of Falepapalangi

1. Two copies of the text have been used, and the text presented here is a little longer than either.

2. The "new boat" is a poem, or a festival, performed in Hahake, the great seat of chiefly residence. It seems that Falepapalangi was defeated, or criticised, by his rival; he replies that his composition, whose theme was the Pale, a headland in Vavau, was composed hurriedly, without much time for polishing, as the bard tossed it off in the fervor of inspiration, using the breeze of inspiration while it was blowing.

3. *Telae* is a little fish that springs along on the rocks, making its way back to the sea when disturbed. The *siale* is a weak and unaggressive shrub, whose blooms fade soon after they are picked. The tropic bird cannot rise when fallen.

4. "A strife of strong fish" is proverbial for a contest of those who are strong and well-matched (17, No. 211).

5. The eminence to which the rival has attained by his victory is likened to his going up and surveying the scene from the headland of Tave in Eua.

6. This reminder that modesty is becoming may be a literal statement that the rival is not skillful at sea, as well as the figurative assertion that in the craft of the bard he has not all the gifts.

8. *Uhiuhi* is the name of a plant.

9. A very bold and effective metaphor. "Possessed" is used in the sense of demonic possession, sick.

10. Veuki is the name of Falepapalangi's compound.

11. Literally, "Wearier, wearer out, of day and night." Instead of "contest," some word such as "song" might be supplied. It is possible that he refers to some scornful question in the rival's poem as to who this Falepapalangi is.

12. In Tongan speech, especially in ceremonial speech in the presence of chiefs, it is very common to guard oneself when about to mention something that perhaps it is not polite to speak about.

13. This metaphor relates to the game of *lafo*. The position supposed is that his opponent's last throw is in scoring position, nearest to the edge of the *lafo*, also near the mat. This is the poem which has been successful. Falepapalangi has a piece of his own standing just near this. Falepapalangi is now throwing his last piece, the present poem. He will not try the shot that drives straight through, knocking the opponent's scoring piece off the mat; that would disturb his own piece, but, by taking advantage of the raised edge, or cushion, of the mat, he will come around and knock his opponent's piece off and score with two pieces of his own.

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174. Tolo veka aki paanga: Pelting the rail with money. 539

Apparently a late phrase coined since the arrival of European money. 825
The word *paanga*, money, is also employed to designate the large flat beans 436
or counters used in the game of *lafo*. The reference to money seems more likely. To kill the rail with pieces of money is doubly foolish. Not only is the ammunition wasted but the rail is of little use when he has been killed.

175. Tolongia pe veka kae ofi: The rail is pelted only when he is close. 539 825

If the bird does not come near the haunts of men there will be nobody to pelt him. In the same way people will not find themselves annoyed or burdened by the commands of chiefs if they keep at a distance from them. [829] [422]

176. Aoto e manu ki Toku: The bird settles on Toku.

Toku is an islet in Vavau whither sea-birds resort in large numbers. The birds may fly far out to sea looking for food but they make for Toku to rest. Used, for instance, of a man coming home to close his days, or jocularly of a lover making for the home of his sweetheart.

177. Hange ha lupe kai kotone: Like a pigeon eating nutmeg.

The pigeon straining to swallow a nutmeg nearly chokes himself, and has to stretch up his head and neck to get the nutmeg down. Used of one who has something on his mind, or who for some other reason sits in company with his head up and an absent-minded expression. The appearance of such a one is compared to that of the straining bird. (Compare Nos. 146 and 167.) [828]

178. Hange ha mata'i moho vao: Like the eye of a wild *moho*.

Moho is the name of a bird. It is very rare now but has been seen on the island of Eua. Its eye has a beautiful red iris. The expression is used of a handsome face. [826]

179. Hange ha tavake ta mafua: Like a tropic bird striking its prey.

Graceful action is here likened to the beautiful sweep of the bird's flight as it comes down to the surface of the sea, the attractiveness of its appearance being further enhanced by its striking tail feathers. (Compare No. 36.)

180. Holo ae miji ki he ovava: The *miji* flock to the *ovava* (*Ficus prolixa*). 539 824

The *miji* (*Aplonis tabuensis*) likes the little berries of the *ovava* tree, 825
and flies to the *ovava* in preference to any other tree. The *ovava*, more- 137
over, is a large noble tree and the bird may be supposed to be attracted 136
by its distinguished appearance. The application is that people like to flock 571
to the home of a chief or of a wealthy man. 559 421 556

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539 825 773 **181. Kai aipe manu vaivai i he fangota ae lulutai:** Weak animals are just eaten up when the *lulutai* goes fishing.

The *lulutai*, which would seem to mean literally the sea-owl, is alleged to have been a great bird and is identified, though without certainty, with the mythological *kanivatu*, the huge bird to whose breast Kae clung and was borne across the ocean from Pulotu to Samoa. With regard to this proverb it is said that when the *lulutai* went out for fish the larger sea creatures, such as the whale, were the object of his quest to be taken home to his haunts. Smaller creatures were merely tit-bits casually swallowed by the way. So do the strong prey upon the weak, destroying and consuming them as a thing hardly worth noticing.

[571] 824

539 825 821 [136] **182. Lofa tala matangi:** Tern telling wind.

The appearance of the tern (Sterna sp.) indicates the approach of a hurricane. Expressions of this sort are capable of much the same application in Tongan as in English; for example, when you see So-and-So coming you always know that something is the matter.

539 825 581 **183. Lulu taki lulu:** Owl leading owl.

Used generally of the mating of things that suit each other. It is said to have originated with the marriage of Fiñta Puku, son of the Tui Haangana, with Fatafehi Lapaha, the Female Tui Tonga. Both man and woman were exceedingly handsome.

539 825 829 461 [136] **184. Mamahi noa ngutu o fuiva:** Mouth of fly-catcher (*Myiolestes heinci*) labors in vain; or labor in vain of the mouth of the fly-catcher.

The fly-catcher has a sweet note, but his singing is mere waste of time so far as getting food is concerned. So used of anyone who goes to much pains but gets no fruit for his labor. This expression was used of a chief who was vainly assiduous in his addresses to a lady.

539 825 829 571 [136] **185. Tengetenga utuaki maa miji:** *Tengetenga* carrying (food) for *miji*.

Tengetenga is a local name in Niua Tobutabu (Keppel's Island) for the *fuiva* (fly-catcher, *Myiolestes heinci*); *miji* is also the name of a bird (*Aplonis tabuensis*). The *tengetenga* is the smaller of these two birds, and the phrase is used for the weak helping the strong, "the poor feeding the rich." (Baker.)

539 825 **186. Molumalu faka-kaka:** Fine like a parrot.

The parrot (*kaka*) found in Eua has an abundance of handsome plumage and with his feathers on looks a large full-fleshed bird. Divested of this showy covering his body is found to be small and thin. Applied to that which is showy but is found to be of little worth.

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187. Pekepeka jio ohuafi: Swift seeing smoke. 539 825

The swift (*Collocallia spodiopyga*) is attracted by the smoke of fires. The expression is used of a person who is constantly making for the fires of his neighbors, that is, who prepares very little food for himself but when he notices the culinary smoke ascending from some other home invites himself there for dinner. The Tongan is very open-handed, but this chap rather overdoes the giving of opportunity to other people to prove that it is more blessed to give than to receive. (Compare No. 86.) 829 571 574 431 [136]

188. Pikipiki aho: Wings folded by day. 539 825

Night birds sit with wings folded during the day. The expression is used of those who don't do much by day but who prowl about at night, very often getting into mischief. 824

189. Tee pato: Duck excrement. 539 825

The missionaries were the first to bring the Muscovy duck to Tonga, and people who were specially anxious to appear well in the eyes of the missionaries would not hesitate to assist them by cleaning up the mess made by the ducks. The expression, therefore, is used of one who does all he can to secure the favor of the missionaries. 797 554 157

190. Vea tee peka: Vea flying-fox dung. 539 825

A man called Vea lived for a long time with a great chief but at last did something for which he was punished. Spoiling one's prosperity or long service by a fault. 571

FISH

191. Angaanga mo fai: The name of a shark whose head is like that of the *fai*, sting ray, and whose tail is like that of the shark called *anga*. 539 825 157

Applied to those of uncertain character, now one thing and then another.

192. Faka-ikeika-lahi: Like a big fish.

Applied to one of a bold resolute deportment.

193. Fakalelei a tukuku: Peace-making of a *tukuku*. 539 825 571 [136]

The *tukuku* is a small fish (one of the Glyphidodon). This is used derisively of the little chap trying to make things right between those who are bigger, or socially superior, to himself.

194. Fotu ae ulua ngalo ae tukuku: The *ulua* appears, the *tukuku* is forgotten. 539 226 584 564

The *ulua* and *tukuku* are two fish, the *tukuku* being small and bony, and the *ulua* large and fleshy. If fishermen are catching the *tukuku* and

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227. Mala nima: Bad luck (of the) hand. 539 226 777

Bad luck, or curse, that is not a visitation of the unseen powers but arises from the awakwardness or folly of man. The phrase is said to have had its origin in the bonito fishing of a certain Tamanika of Fotuhaa in Haapai. He went on board a boat and had the task of bailing out. The fish bit well but the man in charge of the lines continually failed to land a catch. Tamanika vented his disgust in exclamations of, "*Isa, mala nima,*" "Ugh, bad luck from the hand." At length Tamanika was given the fisherman's post and a wonderful haul resulted. It is said that the reef called Hakau Tabu was given to Tamanika in recognition of his expertness.

228. Mavae a pa keina: Separation of an eaten hook, that is, a hook that attracts the fish and often gets a bite. 539 226 586

This is applied, for example, to a handsome man and a handsome woman who have been married, but afterwards separated. Each one of them is a hook that is very likely soon to catch another fish.

229. Ngofua e fanga kae taumatu: The beach is free, get the *matu.* 539 226 622 423 [136]

A beach near which lived a great chief could not be fished on at will by the common people. The Samoan *matu (Caesio pisang)* is a fish which is found inshore, and therefore cannot be caught by the common people near where a chief is living except when the lord's beach is open to the public. Such removal of restriction is indicated by the phrase; the beach is open and even the *matu* may be caught. Used generally of being permitted to do that which was prohibited. [784]

230. Oku kei mata ae tua niu: The rib of the coconut leaflet is still green. 539 226 824

Indicates primarily a fishing net in which the leaflets of the coconut are strung on a rope. This net is used more than once; it may be used as long as the leaves remain in good condition. Applied directly to fishing it means that there is still opportunity for the sport as the net is not yet past service. Generally it means that there is still time, or opportunity, for something.

231. Pa kuo fau: Fish hook that has been made, that is, skillfully made by a real craftsman. 539 226

Thence generally to that which has the marks of real craftsmanship about it.

232. Taki taha uku ene fonu: Each one dive for his own turtle. 539 225 571 622

This is commonly used of everybody attending to his own interests. The pursuit of the turtle is a difficult sport calling for considerable experience and skill. It is a sport moreover whose fruits must be properly

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239. Unga toho ngeeji: Hermit crab dragging shell. 539 825 461

The hermit crab, burdened as he is with the shell of some other creature, makes only slow progress when he moves. This expression is used of one who is slow in his work or movements.

240. Koe loli foki e vau: The sea-slug (*Holothuria atra*) anyway will be scraped. 539 252 226 [136]

This sea-slug is found in great numbers on the reefs; before it is eaten its outer bitter skin is scraped off. If those who go out on the reef for shell-fish and the like fail in finding anything else they are sure to be able to get some sea-slugs to scrape. Used of conversation which failing of topics comes round to some thread-bare subject or well-worn scandal. [521]

241. Pulou kema: Veiled with a clam-shell. 539 735 571 167 237

Used to one who is ashamed to make a request. It is like saying "put a clam-shell over your face so that it cannot be seen and then beg for what you want." Also used of one who is very ready at begging things from others. He is as though he had no shame, as though his face were always shielded from observation. (Compare No. 395.)

242. Tafola vetevete afi: *Tafola* scattering fire. 539 252 [857]

The *tafola* is a kind of crab which is cooked by being thrown alive into the embers and whose death agony is marked by violent struggles which scatter the fire. The expression is used of a disobedient child who apparently makes a moral dispersal of his elders' commands analogous to the displacing of the fire by the luckless crab.

243. Takanga a pipi mo kahi: Companionship of the *pipi* and *kahi*. 539 825 571

The *pipi* and the *kahi* are two shell-fish which are often found together, but the *kahi* devours the *pipi*. It is like the companionship of a simpleton with a sharper who fleeces him. Baker translates the phrase: "To make a pet or comrade of one who will cause trouble or pain." (Compare No. 47.)

244. Tanu a uu: The burying of the robber crab, or the robber crab buries himself. 539 825

The robber crab (*Birgus latro*), burrows into the sand and buries himself, often for months at a time. He remains under ground so long that one might think he was dead but one day he comes again to the surface. So used of a thing that is long out of sight but at length comes again to light.

245. Tonuhia ae kaloaa ka koe vaka: The *kaloaa* is in the right but it is the boat. 539 825 183 [136]

The *kaloaa* is a shell-fish (*Arca scapha*?) which does not move about, unlike the boat which goes and comes at will. So if any disagreement

8: Collocott & Havea M,I-5 (no date) 1922
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376. Jio pe ka kuo i A'a: Seeing but in A'a; equivalent to day-dreaming, absent-minded. 539 776

A'a is an island in Vavau where resided the two female deities Jiji and Faingaa, who used to appear in the form of the dark and light-colored heron respectively and to take the spirits of handsome men to their island. The bodies of the beaux thus deprived of their spirits would see and hear and to all appearance be carrying out their normal functions, but their souls were really far away. 825 774

377. Mamahii tapu ka kuo ilo: Solicitous for the tabu, but knowing. 539 784

This indicates one who is genuinely desirous of observing a tabu, but who knowing the value or charm of the thing prohibited is irresistibly attracted by it and may in the end even break the tabu. The story of Eve and the fruit has been quoted in illustration of this.

378. Mana hoo tevolo: May your devil have power (*mana*). 539 776

A threat of an angry man to another. Your god will need plenty of power to protect you from what I am going to do to you. In its present form it is modern, but with the substitution of some other word for *tevolo* (devil) may well be ancient. Another form of the same phrase is *Manamana hoo tevolo ke ta fai*, May your devil have power for us to do (strive together). The meaning of the two phrases is the same. Either expression may be preceded by *Ofa ke*, I hope that.

379. Ngali pe tevolo moe pouli: Devil just befitting the darkness

Sprites and ghosts and supernatural appearances usually show up at night. Applied to a person with a bad reputation to whom all sorts of bad actions are likely to be imputed. Having once got the reputation of a devil he is liable to be made to carry the blame for any fresh deed of darkness.

380. Pekepeka-tama.

This indicates the white flying-fox said to be an omen of disaster to the house of Ata the chief of Kolovai in the west of Tongatabu, and thence used generally of an omen, portent. The words seem literally to mean, Flying-fox lad, as though one were addressing the observation to another. *Tama*, lad, is frequently applied to chiefs irrespective of age, as *tuahine*, girl, is used of chiefly woman. *Pekepeka* is the usual name for the swift (*Collocallia spodiopyga*), but in this instance seems to be a reduplicated form of *peka*, the flying fox. 539 825 787 [565] [561] [136]

381. Tevolo hala he jikota: A devil making a road of a king-fisher, that is, manifesting himself through the kingfisher (*Halcyon sacra*). 539 776 825 571 [136]

The habit of calling the old gods "devils" dates only from the introduction of Christianity. As this expression implies the kingfisher was one

9: Collocott M-5 (no date) 1922 OU9 Tonga OU9

1. **Liha-mua:** Early nit, December-January. This is the time when the first planted yams are forming roots. At this stage of growth little protuberances or roughnesses, like nits, appear on the heads of the roots. The name is also explained in a more general way. Many fish spawn at this time, and many trees show tiny fruits. A word for little things is nitlike, *ngalihaliha*, and the month is said to be so called because many things are "nitlike" at this period.

2. **Liha-mui:** Late nit. January-February. All the yams, late as well as early, show the little nitlike protuberances.

3. **Vai-mua:** Early rain (water). February-March. The first rainy month.

4. **Vai-mui:** Late rain. March-April. The second rainy month.

5. **Fakaafu-moui:** Putting forth living shoots. April-May. This is a time of vigorous growth with healthy suckers and shoots appearing on many plants. The word *afu* applies especially to the suckers of the *hiapo* (paper mulberry), but is also used more widely. The *fuji* (plantain) and *fau* (*Hibiscus tiliaceus*) should now be planted.

6. **Fakaafu-mate:** Dead, dying, suckers or shoots. May-June. Suckers are now not so vigorous, and dead tops of the yams appear.

7. **Hilinga-kelekele:** Laying earth, that is, either laying of earth or laying on earth. June-July. This is the month in which to start digging the yams. One explanation of the meaning of the name is that the harvested yams with earth adhering to them were laid on platforms constructed in suitable places, as under a tree or in a house, and that the name owes its origin to the fact that the adhering earth was laid down with the yams. Another explanation is that the yams were taken up and laid on the surface of the ground. The two interpretations are not inconsistent, for yams laid on a platform might still be said to be put on the ground. The name itself does not convey a precise meaning.

8. **Hilinga-meaa:** Laying *meaa*. July-August. This is the time to dig and store the remaining yams. These late yams are the biggest, and a portion of the garden is reserved for the special sorts of yam which grow to the largest size. The literal meaning of *meaa* in this place is doubtful. An explanation connects the word with *umea* (clay), and is to the effect that the big yams grow down into the clay which adheres to the roots when dug; but this interpretation is more than doubtful.

9. **Aoao:** August-September. The literal meaning of *Aoao* is obscure; a derivation for the name has been suggested which connects it with *hau-aoa*, used of rotting yam seed. The time for cutting yam for seed is now over, and it is said that if seed be cut in this month a considerable proportion of it will rot.

10. **Fuufuunekinanga:** Full leafiness. September-October. The yams, which have been planted about June and July, are now in full leaf.

11. **Ulu-enga:** Yellow head. October-November. This name is referred both to sea and land. Several sorts of fish are at a stage in their

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221 805 136 831 244

growth when their heads are yellow under the scales. Ashore this is a time of scarcity, whence the proverb, *Ka ai ha ofa tatali ki Ulucuga.* If there is any kindness (gift) wait till Ulucuga, when presents of food will be most useful. When yams are dug a small piece of the root is sometimes thrown back into the hole. These pieces grow into yams, which though small are deep in the ground on account of the manner of their planting. During the time of scarcity people search for these little yams, and in bending down to throw the soil out of the deep holes they are likely to make themselves yellow-headed.

221 805 244

12. **Tanu-manga:** Throwing soil on branch, fork. November-December. A growing yam is likely to project slightly above the ground, and frequently a small yam grows down from the same stem thus making a branch or fork on the head of the root. In this month if the head of a yam appears forked (*manga*), the gardener banks it over with soil (*tanu*).

With Tanumanga the year normally ends. If, however, observation of the yam and other plants and of fishes at the next new moon fails to discover the appearances proper to the month with which the year begins, Lihamua, another month is intercalated.

221 805 415

13. **Ooa-ki-fangongo:** Using a coconut-shell as basket. *Ooa* is said to be a reduplicated form of *oa*, one sort of basket; *fangongo* is an empty coconut-shell cut open and used as a receptacle for small things. This is a time of scarcity, and the idea is that one needs but a small receptacle in which to place his food.

NIGHTS OF THE MONTH

805 With the Tongans, as with other Polynesians, it is habitual to count by nights rather than by days. Where the English speaker says "five days after" the Tongan says "five nights after." An intelligent Tongan suggests as a reason that his people treat the hours of daylight and of the succeeding darkness as one day and that in reckoning the closing portion of the day is considered.

The division of the month was based on the phases of the moon, and the days or nights were counted within the month, several of the nights having special names. Expressed perhaps in a better way, there were special names for the moon in several of
805 her phases. The fisherman has strong reasons for close observance
226 of the moon, as some days are *aho ika*, fish days, favorable for the catching of certain sorts of fish. These fish days evidently vary with different localities and for different species of fish.

805 821 It is asserted that the appearance of the moon in a looking-

14: Thomson G-3 (1886-1891) 1894
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000 gotten, the primitive method of raising weights is likely to prevail in that district. I asked the old men what they did with heavier weights still, and they immediately answered, "We make the platform of earth, and dig it away to make the log tip up." No doubt, when the log or stone is on end, they dig away the platform, throwing the earth into its old position, so that no trace remains. Having seen the whole process, I shall continue to believe that Stonehenge was built like this, until some one offers a better explanation.

349 There is a legend that the Haamonga stones were [773] brought by the god Maui in a gigantic canoe from Uea [823] (Wallace Island), and that you may see there great holes in the rock whence they were quarried. A European even assured me that the stone is of a kind not found [135] in Tonga at all. This part of the story at least is not true, for the stone is mere coral, hardened by exposure, of exactly the same quality as the reef close by.

136 In discussing the peculiarities of man I have altogether neglected the lower animals in Tonga. The only indigenous mammals were a small field-rat, a fruit-eating bat [226] or flying fox, and a small cave-bat. The rat, having no [526] enemies but man, swarmed throughout the islands: so numerous were they that it was a chieflike sport to shoot them in the paths with a bow and arrow. They have almost vanished now before the cats, dogs, and their voracious Norway cousin, and rat-shooting is now as extinct as bear-baiting in England.

[231] The first foreign arrival was of course the pig. It is a [177] popular fallacy that Captain Cook, among his other benefi-

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cent actions, introduced the pig into the islands of the Pacific. It would be questionable whether, if he had done so, he would have deserved the gratitude of posterity; for the pig, in his *rôle* of universal scavenger, adds to the insanitary state of the village when alive, and when dead disagrees with his owners. For he was never an article of common diet, being killed only on occasions of ceremony, and then eaten to excess. So far from taking pigs to Tonga. Cook called there to obtain them in order to preserve his crew from the scourge that wrecked so many other expeditions, the scurvy. One hundred and thirty years before Cook's visit Tasman exchanged iron for pigs at Hihifo. But pigs had not then reached all the islands. Penrhyn was without them; and tradition tells of a time when even Fiji, so rich in all else, knew not the taste of pork. The story comes from Samoa, and its very incoherence seems to stamp it as having a core of true metal within its thick coating of alloy:—

"Many generations ago, when the world was still young, the crops in Upolu failed, and there was a great famine. And a man, who had a daughter married to the chief of Tutuila, called his son to him and said, 'The people are dying of hunger, and beside these two pigs we have naught to eat. If we kill these the neighbours will come in and take the meat from us, and afterwards we shall all perish together. But I have heard that in thy sister's land, in Tutuila, there is yet plenty. Now go to her and ask her for shelter for me and thy mother and thy brothers who made her marriage-feast for her, for we would live with her until there be again plenty in Upolu.'

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000 and there was great rejoicing, for there were no hogs in the island. And from this sow was the whole island replenished."

231 177 192 Some writers have remarked upon the Polynesian word for pig—*puaka* or *vuaka*—as being a proof that the pigs were first introduced by the Portuguese. There are, however, other words of Melanesian origin for the animal in Fiji—*unyō* and *rore*—that show the animal to have been known in the Pacific by others than the Malayo-Polynesians. It is most probable that the name is a mere coincidence, and that the people brought their pigs to the Pacific with them. The name may even be onomatopœic.

231 [136] The pig of the Pacific is long-snouted, humpbacked, lean, and out-at-elbows. He seems to have forgotten such of the decencies as may be traditionary among his civilised cousins, and will eat putrid flesh and other things that are unmentionable. He is, besides, stricken with a deep melancholy, from which neither the sunshine nor the cloud of flies in which he passes his existence can rouse him.

235 [171] Domestic poultry must also have come to the Pacific with the ancestors of the present Polynesians. The Tongan name *moa* and the Fijian *toa* are of course onomatopœic. The Maories, already possessing the word to denote domestic fowls, applied it to the great wingless birds they saw on their arrival in New Zealand; for the *moa* in their eyes was simply a hen on a gigantic scale.

231 177 192 The cat was probably the next arrival, and its native name is proof-positive that it was introduced by a person who called it "pussy," therefore an Englishman. In an

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ancient poem celebrating one of the earliest visits of a European ship, an unsuspecting cat has been handed down to posterity as sitting on the fo'csle :— 231 177 192

"Pusi ka tiko e mua ni wanga."

To the native poet it was the most remarkable feature of the ship. In Tonga it is *pusi*, in Fiji *vusi*, and, by metathesis, *kusi*. If the Polynesians had brought their cats with them, we should no doubt find that, like the ancient Egyptians, they called it *miau*. As for "puss," has not a living writer remarked that the god Pasht had a cat's head?

Then came the dogs. The name *kuli* has given rise to a popular delusion that the first dog was a colley, but this satisfying theory will not withstand the fact that the accent of the native name falls on the ultimate, and that dogs were called *kuli* as early as 1777, before sheep-dogs were generally known as colleys, the dogs in the Pacific at that date being not colleys at all. The more ancient Fijian name for dog is *tui*, but the word *kuli* is in use in all parts of that group that have been affected by Tongan immigration. Captain Cook found no dogs in Tonga in 1773, but on his return four years later he noticed numbers of dogs, "commonly of a sallow colour, small and pretty, nearly resembling the Pomeranian dog," which the natives declared they had lately obtained from Fiji. Whence the Fijians acquired them will now never be known; but, since the dingos or native dogs of Australia and New Guinea are very unlike the animals described by Cook, it seems probable that they are late introductions, landed from some vessel the tradition of 231 177 [136]

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cart is noiseless, and so after nightfall they are compelled by law to carry a light. The law is satisfied by the economical expedient of a smouldering brand, visible no farther than a lighted cigar.

There is little bird-life in the islands, but two of the species show remarkable peculiarities. The *kaka*, a green parrot common to all the islands of Fiji, is in Tonga confined to the little island of Eua. Though tame parrots have been taken across the narrow strait that separates Eua from Tongatabu, and have escaped in the larger island, they have never bred there. Wallace has recorded the fact that land-birds will not cross a deep-water strait, however narrow; but no one has offered a plausible explanation of the arrival of the *kaka* in Eua without touching at Tongatabu. The Eua species differs slightly from the green parrot of Fiji.

Stranger still is the presence of the megapodius (*malao*) in Niuafoou (Boscawen Island), which, if one may judge from the absence of a fringing reef and the volcanic nature of the soil, is of more recent formation than the others. It is covered with the large mounds in which this energetic little bird lays its eggs, leaving them to be hatched by the sun if they be fortunate enough to escape the eyes of the people or the pigs of the place. These eggs, enormous when compared with the size of the bird, have been for centuries regarded as a delicacy of Tongatabu, and have been exported thither in every canoe sailing southward during the breeding season. I was told (with what truth I know not, for I tried it and failed) that the eggs thus taken to Tongatabu are often hatched artificially and the young *malao* reared. The jungle of the southern

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136 islands differs little from that of Niuafoou. Whence comes it, then, that a bird so hardy in its breeding arrangements should be confined to that one small island? and how is it that a bird whose eastern limit is the Solomon Islands should be found in Polynesia at all, after skipping all the intermediate islands of Melanesia? If it was brought thither by man, of what strange story of the migration of races is it the only surviving record? This is not Nature's only caprice in respect of this strange bird. Its enormous egg, its untiring industry in mound-building, its unnatural indifference to its young, its wariness on foot, and its wonderful stupidity when forced to take to flight, give to it and its allied species an exclusive position among birds. The natives of New Guinea catch and tame the young by the simple expedient of building a fence round the mound. The little creatures, hatched by the warmth of the decaying leaves among which the mother lays them, scratch their way to the surface fully equipped for their fight with Nature, and are easily caught within the circle of the fence. In British New Guinea, where the megapodius was often our only animal food, it was some time before I learned the secret of shooting him. When he first sees you he runs like a pheasant, stopping every twenty yards or so to reconnoitre. You stalk him, but find that he always keeps a few yards out of shot, until you lose him altogether among the trees. The only way to make sure of him is to run after him as soon as he sees you. He then discovers that his legs are not fast enough, and reluctantly takes to wing, flaps awkwardly to the nearest bough, and there, secure in his commanding position, and proud of the

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[1616]

breast, and they fled to one of the canoes with sails and tried to persuade them to attack, but they would not, having been well used by us. They were very thievish and exceedingly desirous of iron, trying to draw the bolts out of the ship. They were of fine stature, well-proportioned, naked but for an apron. Their hair was dressed and frizzed, and some had long hair tied up in a knot. They were notable swimmers. Cocos Island lies in lat. 16° 10′.

On the 12th, in the morning, trading was reopened. We bought 1200 nuts that day; also bananas, *obas* [yams], and some water. The ship had eighty-five people all told on board, and every one had a dozen nuts. The king of the other island sent a canoe with a black wild pig as a present to us. In the afternoon the chief himself came with a great sailing canoe, fashioned as has been described heretofore, like an ice-sled, and was accompanied by quite thirty-five small canoes. This chief was called by his people *Latou*.[1] We received him with drums and trumpets, no little to his astonishment, as he had not seen or heard these instruments before. Many of the people who accompanied this chief kissed our feet, bowing and clapping their fists together over their heads, and other strange ceremonies, and showed great wonderment at our ship. The chief seemed to have good authority over his people. The chief himself could not be induced to come on board our ship, but his son did.

13th.—In the morning fully forty-five small canoes and an armada of twenty-three sailing ones came off towards us to trade. The latter had about twenty-five men in each, and the former four and five apiece. They wanted us to sail over to the other island, and we weighed anchor and proceeded—the chief sailing in his canoe abreast of us.

Presently the chief made a signal, and boarded us with great force, breaking the prow of his canoe, and thereat the rest began

[1] *Latu* is still the title of the chief of Niua-tobutabu. Cf. Fijian title *Ratu*.

15: Thomson G-3 (1886-1900) 1902
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137 them up to the light, choking its support in its tangled embrace. The story that it was introduced by a trader in the straw of a packing-case is, perhaps, mythical, but it was certainly unknown in Tonga thirty years ago. Unless strong measures are taken to check it, there will come a day when neither cocoanuts nor yams can be planted any more. Then Tonga, overrun with a tangle of thorny vines, swarming with hornets, will not be a pleasant place to live in.

136 This plant is not the only pest for which packing-straw is said to be accountable. Between 1890 and last year hornets were introduced. They have multiplied so rapidly that it is now unsafe to brush through the thick undergrowth in which they build their nests. We had lived on shore in Nukualofa for three weeks before we saw any, but on a never-to-be-forgotten day in May, they made up for their neglect. About ten the air began to vibrate with an angry hum, and we noticed a few hornets cruising about the eaves of the verandah. An hour later they were knocking against the window panes and crawling about the walls, seeking entrance to the house. At lunch-time the dining-room was full of them, and their angry hum almost drowned conversation. They were making for the darker places,

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the shade of the shuttered bedrooms, the backs of pictures and the folds of curtains. They took no notice of us, but every now and then a couple would meet in the upper air, fall pat upon the floor, and take to crawling. As there seemed no reason why they should not choose to fall between the collar and the neck, or crawl up the legs, we thought it time to seek sanctuary. But there was none. Every corner of the house was theirs, and in the pitiless sun outside the air was black with them. A hot argument arose about this phenomenon, some of us maintaining that they were swarming, and, like bees, would gather about their queen; others, who knew them better, that they were male and female, and that this was their pairing time. To that emotional hour I owe all my learning about hornets. The brute so heavily barred with black stripes that he looks a wicked brown, is the male, who has no sting, and may be trodden on with impunity; the bright yellow beasts are females, with a barbed sting nearly as long as their bodies. We disturbed the economy of Nature that day. Our host had a five-gallon jar of some American insect powder, and we lighted censers of the acrid stuff in every room until we had to dash into the air to breathe. Would that I could

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136 remember the name of that powder, to give its inventor a gratuitous advertisement! In half an hour our enemies were all upon the floor at the mercy of a soft broom and a dust-pan. We filled two buckets with their kicking bodies, and fed the kitchen fire with them. We heard next day that every house in Nukualofa, from the king's palace to the pigsties, had been made uninhabitable, but that at sunset they had disappeared, to be seen no more till next year.

795 Our escort of policemen were most obliging
798 fellows. One was a Wesleyan, the other a Free Churchman, and the friendly theological discussions in which they indulged from time to time showed that the bitter sectarian hatred, so sedulously nurtured by Mr. Baker, had quite died away. Ten years before a Wesleyan could not have hoped for the humblest government appointment.

825 I was bursting with the shôwman's pride as we rode into Kolovai, having wrought the expectations of my companions to the highest pitch. I begged them not to look up until we halted under the trees. When I gave the word they looked up, and then they looked at me. Surely these were not the trees! But the state of the foliage left no doubt upon that point. We

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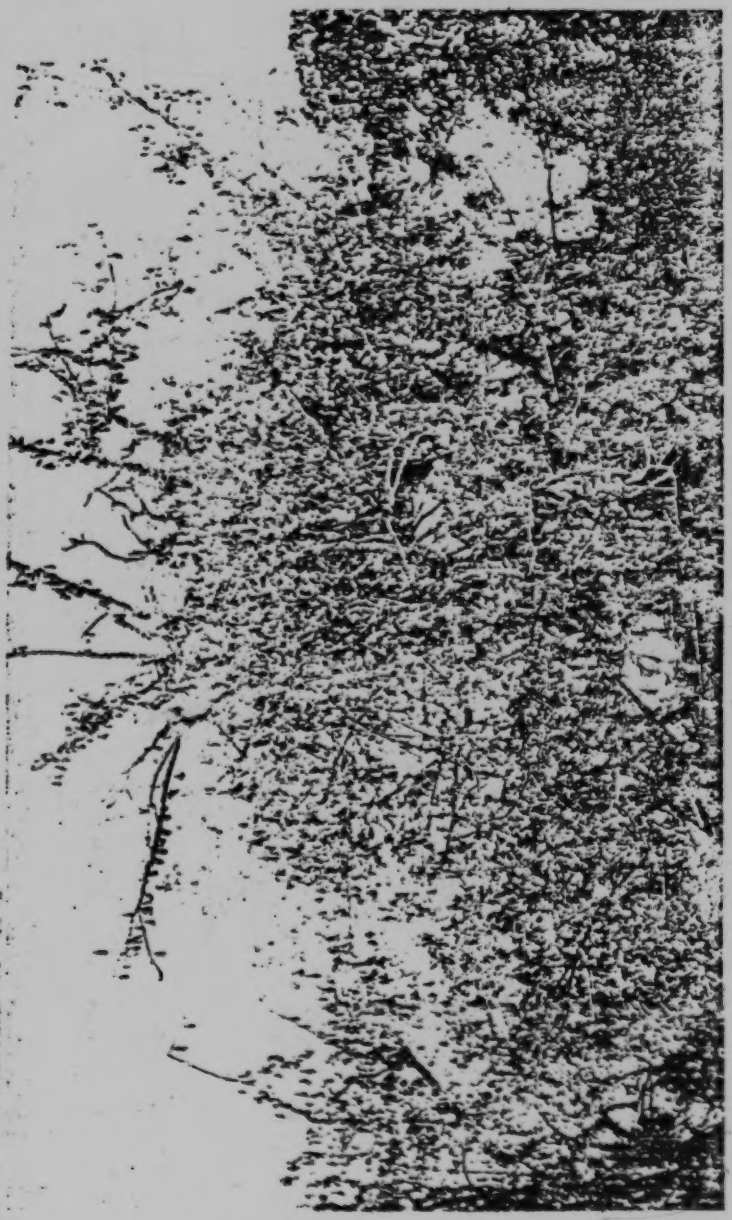

From a photograph by *J. Martin, Auckland*

THE COLONY OF FLYING FOXES AT KOLOVAI

They were seen on the same trees by Vason, the renegade missionary, in 1799

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in a *kalia*, in time to overtake the brig before its final departure for our own station at Vavau. We were not sorry to part company, even for a few days and nights, with the Egyptian plagues on board the ship. Since coming into the tropics, musquitoes had added their forces to the legions of beetles already there, and the united venom of these insects made the time spent on board anything but desirable. We were also told that the kalia would run the distance to Lifuka in about three hours, whereas it would take the "Triton" nearly the whole day, if not more.

The time for embarcation came. It was our first voyage in a native sea-going canoe; and we were to be honoured by having, as *Eiki vaka*, (ship's captain,) the greatest man in Tugua. The blowing of conch shells, the beating of the *lalis* or great wooden drums, and the shouts of the gathering crew, threw the whole population of Tugua into a fever. And no wonder, for it is doubtful whether they had ever seen so many Europeans on their little sand-bank before; and, then, we had evidently gratified their pride by forsaking the Mission brig for their own swift kalia.

Once on board, we, too, became excited. Such a jabber of tongues we had never heard before. Up went the huge sail, down went the great steer-oars splashing into the sea, and away we shot like a race-horse. The breeze was strong. Every timber of the canoe creaked again; while the mast bent like a reed, and cracked in its socket as if it would split the deck in two. The whole affair seemed to be grand sport to the natives; but we might be excused, on this our maiden-trip, for taking a firm grasp of a rope, in the expectation that every moment

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a considerable height; thirty-five are moderately elevated; and the rest are low. The three divisions have generally been known as the Tonga, Haabai, and Vavau Islands. The latter group, however, is frequently called by the natives Haafuluhao.

The Tongan group contains Tonga, the chief island, from which the group is named, and which, by way of distinction and eminence, is most generally called Tongatabu,—Tonga the Sacred. Next in importance are the islands of Eua, Eueiki, Bagaimotu, Atata, Fafa, and a goodly sprinkling of smaller and uninhabited islets. With the single exception of Eua, none of the Tongan group reach any considerable elevation.

The Haabai Islands are separated from the Tongan, by about thirty miles of clear sea at their nearest points, from whence they extend northward over a distance of seventy miles. The whole group is intersected by alternate reefs and deep sea channels, which make the navigation both intricate and dangerous to strangers. They are all of low elevation, with the exception of the volcanic islands of Tofua and Kao. Lifuka, Haano, Foa, Lofaga, Mougaone, Uiha, Fonualoa, Uoleva, The Otu-Tolu, Nomuka, Haafeva, Tugua, Fotuhaa, and the two islands already named, are the principal included in this group.

Between Tonga and Haabai there are also two high islands, called Huga Tonga and Huga Haabai. They lie about twenty miles to the westward of the usual course from the one group to the other: and they are separated from each other by a deep sea channel of about one mile and a half wide. They give clear evidences of volcanic origin, and are haunted by innumerable flocks of sea-birds. Access

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ness should, unhappily, overturn the world altogether. This custom still prevails; although the belief of the native mind, as to the supposed cause of the earthquake, has long since been abandoned.

In addition to the fresh-water and other lakes already enumerated, in connexion with several of the volcanic islands, there is one at Nomuka, in Haabai, having certain saline properties, exceedingly worthy of notice. There is also another, in the western district of Vavau, but it has no special peculiarities, and it is of no great extent.

That at Nomuka occupies the centre of the island, which, although not more than one hundred feet in elevation, is evidently of volcanic origin. Following the shape of the island, the lake extends lengthwise in an oval form. Its depth is remarkably varied, being in some places only a few feet, and, in others, as many fathoms. The water is intensely brackish, and, in taste, is not unlike a strong solution of Epsom salts. There is no visible connexion with the outer ocean, and no perceptible rise or fall of the water.

A peculiar fish is found here in great abundance. It differs from all known in the adjacent sea, and it has the property of remaining perfectly fresh for an entire day or more, while all other kinds go bad, in the course of two or three hours, in consequence of the extreme heat. After being once cooked, the *ava* will remain eatable for a number of days: and hence it is in much request, by the natives, when on their voyages, as an article of provender. Indeed, the lake may be regarded as a fish preserve, inasmuch as it is placed under certain restrictions in favour of voyagers. No

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doubt the strong saline constituents of the lake act, upon the substance of the fish, so as to prevent rapid decomposition. Singular to say, however, this is not indicated by anything peculiar in the taste. Indeed, the *ava* is greatly esteemed for its dainty and luscious qualities. The fish attains a length of two and a half feet, when full grown. It seems to belong to the salmon family; but its flesh is white, and the skeleton of the fish displays an infinite number of fine cartilaginous bones ramifying its entire fleshy substance.

Numerous and perfect specimens of the shell of the *Tridacna gigas* are also found, around the borders of the Nomuka lake, *buried in the soil of its banks.* No living specimens of this mollusk are obtained from the lake itself, nor are they found, so far as we know, in the adjoining sea. One shell, which we dug out of the loose clay and gravel composing the banks of the lake, measured a little over three feet in length, by nearly sixteen inches in width. Although the species is said to have been met with by the French naturalist accompanying the "Astrolabe," as stated in the published zoology of that exploring expedition, yet it is probable that the shell, obtained in Tonga, was only one of those from Nomuka. At all events, the living mollusk was never met with by us, during a ten years' residence, although there are several varieties of *chama*, of large size, very common amongst the different islands.

There is a fair variety of both salt-water and land shells, but none perhaps that are peculiar or confined to Tonga. Several sorts are much used by the natives in ornamenting canoes and houses, as well as in decorating their persons. The chief of these are, the

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crowd of people, some in canoes, and still more swimming and wading in the water, making merry over the captives, and spearing any of the larger fish that seemed likely to escape, or were behaving with unbecoming rudeness to any of their weaker companions in tribulation. Amid much shouting, and many pleasant jokes, the whole of the motley fraternity were safely secured; and, being easily obtained when the tide had ebbed away, they were speedily distributed among the several owners of the nets and canoes.

The true sperm whale, and other species of the cetaceous mammals, are often observed in the neighbourhood of the islands. Dolphins and porpoises abound; but they are not sought after by the people. Sharks, however, are numerous, and these are caught in considerable numbers by hooks, or, more commonly still, by a simple bait, and a running noose. In all great feasts, the presence of as many sharks as can be obtained, is considered to be an indispensable requisite. They are always cooked entire, whatever may be their size; and they are enclosed in a long basket made from the cocoa-nut leaf. The flesh of a young shark, when about four feet long, is exceedingly good eating. One of the largest of these monsters we ever saw, was caught from the deck of the Mission ship "John Wesley," when at anchor in Vavau harbour. It measured nearly eighteen feet in length; and, when opened, was found to contain sixteen young sharks, just about to be spawned. It was what is called a ground shark, having double rows of upper and lower teeth, each separate tooth being as sharp as a lancet.

Turtle do not abound so plentifully in the Friendly

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Islands as they do in Fiji; nor is so much time and care bestowed upon their capture by the Tonguese. This may be accounted for by the fact, that, in former times, none but chiefs were permitted to capture, or, at all events, to partake of turtle. Even now the Tonguese law is, that one half of all turtles caught, by any person, shall be taken to the ruling chief of the place, as the king's representative, while the remainder falls to the lot of the fisherman. The same law applies also to the capture of the albicore, bonito, and a few other of the larger and rarer fish.

In conclusion, we may remark, upon this department of native resources and habits, that the prosecution of fishing is confined to the male sex; while the work of *fagota*, or shell-fishing, is mainly assigned to the women.

Like many of the Polynesian groups, these islands are entirely free from noxious snakes and serpents; nor are there any frogs or toads, such as are very common in the adjacent Fijian archipelago.

There is, however, a genuine sea-serpent, of harmless character, called by the Tonguese the *tukuhali*. It often leaves the sea that it may bask in the sun among the grass, and low shrubbery, skirting the shore. Its motion, both in the water and upon the land, is that of the true serpent species. It has nothing answering to the fins of the eel family. It is of a bluish-white colour, variegated by white and black stripes or rings, extending, at regular and close intervals, over the whole length of its body. The largest specimen we have seen would measure six feet in length, with a diameter of not more than an inch and a

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

quarter in the thickest part. On only two occasions have we seen it swimming at sea. When first observed, it was carrying the head quite erect, about four inches above the surface; but, instantly it saw our boat, it drew its head under water, and disappeared. The natives seem to have a great reverence for, or else a great aversion to, the creature, notwithstanding its prettiness. But this may arise, in part, from its having been held sacred, and being even worshipped in former days.

It would be hard to determine what were the indigenous animals of the Tonga Islands. We have heard an intelligent native playfully say, that, in olden times, the only representatives of the animal and feathered tribes, were the *kuma*, or field-mouse, and the *jikota*, a species of kingfisher. Captain Cook found hogs, and dogs, and probably, cats, upon the islands; but it is just possible that these were first left by the Dutch navigator Tasman, nearly a century before. Of his visit, the people have no traditionary knowledge whatsoever. Whether the Tonguese obtained animals from him or not, there is no doubt that the breed of hogs now extant is much superior to that which the people possessed in bygone days. Considerable attention is paid to rearing them. Many, it is true, are allowed to run wild in the bush; but a very large number are reared in pig-styes, or are regularly tended and fed by their owners.

The number of pigs consumed at the great native feasts, of various kinds, is something enormous. Hundreds, and even thousands, have been known to be slaughtered and cooked entire, on these occasions, with a wasteful extravagance, against which the Missionaries have hitherto lifted

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up their protest in vain. By the custom of the country, in this matter, the bulk of the people have been kept poor, through an indisposition on their part to breed and rear animals that might, at any moment, be demanded from them by the chiefs, as a contribution to a domestic, political, or even religious festival.

Horses and cattle were re-introduced by the Missionaries, a few years since, and have thriven well. They were first left by Captain Cook, but became extinct during the long series of wars which succeeded the period of his visit. Sheep also have been added, in late years, to the stock of fine goats that had been introduced at an earlier date. The number, however, of these various animals never can become anything very great. The islands are too small to permit of extensive districts being devoted to sheep-runs or pasturage for cattle. Sufficient, however, may be raised for all the purposes of home consumption, and for the replenishing of ships' stores, even should the population become much more numerous than it now is.

The common domestic fowl, the *moa* of Polynesia, is exceedingly abundant, both in the *abis* of the people, and in all parts of the bush. They are somewhat smaller than the English species, but are quite equal in flavour. The *bato*, or Muscovy duck, is also becoming plentiful; while the possession of fine large broods of turkeys is not now restricted to the limits of the Mission families, by whom they were introduced. Geese and English ducks have been tried; but they do not appear to thrive. Perhaps this is owing to the want of sufficient water-ponds.

There is no great variety in the other members

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of the feathered tribes of these islands. The sea-birds comprehend several varieties of gulls, bitterns, and herons. Of these the most peculiar is the tropic bird, called by the natives, *taviki*, (the *Phaeton ætherius*). It is greatly admired and valued by the people, on account of its two beautiful blood-red tail feathers. The bird is about the size of a partridge. Its wings are very long, and its flight is both swift and graceful. It may often be seen soaring high in the air, and speeding along without even a flutter, apparently, of its wings. Undoubtedly, this bird belongs more properly to the family of gulls, than to that of the pelicans, among which it has been classified by some ornithologists.

Among the land-birds there are the native *kaka*, a green parrot found only in Eua; several *kulukulus*, or parroquets; owls, wild pigeons, turtle-doves; the *jikota*, or kingfisher; (a variety of the *Dacelo gigantea*,) a wild duck, found in the lakes and lagoons, and large flocks of snipes and sandpipers, which resort at certain seasons to the shores of the low islands.

We have omitted to mention among the mammals, the native *bekas*, or vampyre bats. These animals are somewhat numerous; and they have their habitat among the *toa* trees usually planted in the vicinity of burial-grounds. There they congregate, and breed, like the rooks of this country.

A large *batery* of this description was located near our Mission residence in Hihifo, Tongatabu, where we had ample opportunity for observing their habits. During the day-time, these creatures remained tolerably quiet, either in their nests, or suspended by their claws from the branches, with

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136 the exception of an occasional squeaking cry from the whole fraternity, when any troublesome bat fluttered about in search of a new roosting-place. As night approached, all became uproar and commotion. There seemed invariably to be a great deal of debating and manœuvring, before they could finally start on their nocturnal expeditions in search of food. Their return to the grove of *toas* always indicated the near approach of daylight, accompanied as it was by their loud chattering, and the evident contention for convenient roosting-places.

136 825 784 (778) On certain occasions, in former times, these animals were *tabu*, or considered sacred by the people. During those seasons, the penalty of death itself might be inflicted upon any one who should disturb or destroy them. In this way, one of the Missionaries, the Rev. Stephen Rabone, well nigh fell a sacrifice to the rage of a heathen chief in Hihifo. At the time, one of the chiefs was lying dangerously ill, and the bats were then *tabu*. Not knowing the law or custom, Mr. Rabone shot one, as it happened to fly over his garden. Shortly afterwards, an enraged relative of the sick man rushed into the Mission House, club in hand, and would certainly have done Mr. Rabone serious personal injury, but for the prompt interference of a Christian Chief of higher rank than himself.

136 Here, as in all tropical countries, insect life swarms, and luxuriates, as much as the vegetation. Many of the insect tribes are doubtless useful to man in their own places; but when they take possession of human habitations, and there multiply profusely, they then become a real plague. Ants, black, white, and red, swarm everywhere, and so do lizards, and beetles of all kinds. Some of these

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latter throw out a most disgusting odour. There are insects that bite, and insects that suck, and insects that scratch, and insects that sting. Their name is indeed "legion." Some are cased in armour as hard as crab-shells, and, therefore, cannot easily be crushed. Others are plump, and so thin-skinned, that the slightest touch will cause their destruction. Of all these pests, however, the musquito stands unrivalled in its power to inflict a whole catalogue of petty, but not the less irritating, annoyances, upon residents in intertropical climes.

With the thermometer standing at 80° in your bedroom, musquitoes swarming round your curtains, and too often within, sleep is a blessing which comes but seldom, and never is sound or refreshing. Not content with sucking the blood out of your veins, they pour a venom into them, throwing the most philosophic of their victims into a state of fever and irritation. The heat itself, enervating and exhausting as it is, would be much more endurable but for these winged pests of society. The very noise of their trumpet,—loud and long for such a tiny creature,—is more effectual than even their bite, in preventing any possibility of obtaining repose. They seem also to know, instinctively, the most tantalizing way of approaching their victim, and where most effectively to alight, and thrust in their blood-thirsty lancet. It is in vain that you get into a passion, and slap your own ears, or forehead, with the hope of annihilating the obnoxious enemy. The very act only prolongs and increases the misery. The motion of the air, so disturbed, blows the light musquito to a safe distance, only to return to the charge, with, apparently,

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136 513 increased zest and indomitable perseverance. The best way is to let him alight, if he will, and gorge himself with your blood; for, while so employed, you can quietly crush him. When, however, they come in troops, the contest may as well be given up at once, with as much patient resignation, as one can command.

136 342 513 The natives adopt various plans for evading the troublesome company of these insects. In some islands, where they swarm by myriads, the people construct small huts, to sleep in, by the sea shore. These huts are elevated upon four posts sufficiently high to overtop the bushes and low trees beneath, where the musquitoes nestle in greatest number. Here, no doubt, considerable relief is obtained, owing to the airy position. Nor has it been an uncommon practice, when the swarms have been immense, for many of the people to dig pits in the sands on the sea-shore, where, covering themselves in from the tormentors, they have secured the necessary repose. Even the scented oils, with which the natives anoint themselves profusely, do not deter the musquitoes from alighting and making an attack: although there can be no doubt that these prevent or greatly diminish the irritation caused by their bite.

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[Niua Tobutabu]

797 had to be examined, and all cases requiring discipline gone into and dealt with. After this, preaching services must be held, and several of the schools be examined. As might be expected, a large number of marriages and baptisms had also to be performed. Such likewise is the close relationship between religious, political, and judicial affairs, in a community so small and primitive in its habits, that the visiting Missionary is compelled to "intermeddle with all wisdom." He must listen to queries and appeals from both chiefs and commoners, and, to the best of his ability, he is expected to express his opinion and decisions thereupon.

In many of these occupations Mr. Davis and myself were kept busy from one P.M. until nearly midnight, with only one short interval for refreshment. Thoroughly tired, we then retired from the chapel to our appointed habitation; but here, again, we found a large number of teachers anxiously waiting our coming, that they might have passages of Scripture explained, and be supplied with outlines of sermons to carry them on through their preaching duties, for another twelve months, at the least. All this, too, was done in the midst of clouds of mus- [136] quitoes, for which the island is very famous. We were literally worried in body and mind, and longed for a little repose. Being at length positively unable to answer any more questions, or meet any further demands, we retired to the little sleeping room, where our musquito curtains had been very carefully adjusted, and where we expected to obtain renewed strength for the further duties of the morrow. We were miserably disappointed. We had not been long laid down, when our insatiable persecutors found an entrance somewhere through the curtains.

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[Niua Tobutabu]

We then lighted a lamp, and tried to beat them out. The attempt, however, failed; more came in than those we destroyed or swept away. Finding it useless to remain there, the natives advised a removal into the centre of the large chapel, where they thought we should be comparatively safe, owing to the free circulation of air through the building. We tried this also, but in vain. The musquitoes were in such numbers, we were driven forth to walk about till daylight. Fairly overcome by sleep, Mr. Davis sought a nestling-place under a thicket, whilst I, equally needy of repose, climbed into a tree. But all was in vain; and we finally walked about until the dawn of day brought a little relief.

When daylight came, Mr. Davis was found to be in a dreadful state. His face and hands were swollen to double their usual size. He presented the exact picture of a man who had been severely handled in a pugilistic encounter; and although we pitied him, we could not resist the temptation to have a good laugh at his expense. Although the venom of the insect had not produced the same effects upon my person, yet I was thrown into a state of high irritation and feverishness. A more miserable night we could not have spent after a day of so much excitement and hard work.

It will be supposed that we were but ill prepared for the many duties of the new day; but these had nevertheless to be done. The same round of occupations filled up our time, as on the previous day, until about three o'clock, P.M., when we prepared to embark. We had done our best to adjust the heterogeneous jumble of church and state affairs that had been brought before us. To have done so

36: Collocott M-4,5 (no date) 1921
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539 warmer, till at length Atalanga, with an expression of anger and disgust got to work digging, and Kijikiji went and took his station at the breathing-vent, where presently the rat ran out, and was at once seized by the younger Maui and choked to death. After this the Mauis returned to Haalaufuli, and lived [136] there; but after a while they heard of the ravages committed in Eua, by the moa (moa at present used for the ordinary barn-door fowl, but this is obviously a great bird, perhaps not unlike the New Zealand moa, although I know of no traces of any large birds in these islands), and the lizard, and the paper-mulberry tree, and the toto eitu (a tree). Accordingly they again set forth, and went to Eua, where they first met and slew the lizard. They next encountered the paper-mulberry, who, as was its wont, at once bent down to bite them, but Kijikiji seized it, and snapped it, and pulled it up by the roots. On resuming their quest they lighted next on the toto eitu, who also attempted to bite them, but was frustrated and destroyed by Kijikiji as summarily as the paper-mulberry had been. They went on in search of the moa, whom at length they saw in the distance, bigger than a house, a great mountain of a bird. Again the discussion of a plan of campaign revealed a lack of agreement. Atalanga proposed that his son should drive the bird towards him, till it was close enough to throw a stone at. Kijikiji was insistent that he have the privilege of throwing the stone. "No, father," he said, "do you go and chase it towards me, and I'll stone it." "What an undutiful child you are," the father angrily retorted, "you indeed, you stone it." "Oh, just wait here," responded Kijikiji, "whilst I go and chuck a stone at this great fowl." The discussion was becoming perilous, as meanwhile the bird had seen them, and they had all the while been drawing nearer to it. Now each of the Mauis had a stone in either hand, and as they got within range Atalanga added a last remonstrance against his son's being the marksman, expressing his fear of the consequences should the shot miss its aim. Kijikiji curtly replied, "Father, I'll throw," and straightway let fly, realising at least part of his father's fears, for the stone merely grazed the moa; but the pain made him timid instead of fierce, for he flew off at once towards Tonga.

39. Gerstle & Raitt C.Q-4,5 (1952-1972) 1974
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Flying Foxes in early Tonga were, at times, inhabited by gods. Even today, flying foxes retain much of their sanctity and are considered to be *tapu*. Here they hang from an ironwood tree at Kolovai, where they are plentiful.

Na'e toe **pehe tokua na'e nofo ha ngaahi laumalie pe 'otua kehekehe 'i he fanga peka. A'u ki he ngaahi 'aho ni 'oku kei tapu pe a e peka Tonga. Ko e ta eni o e fanga peka 'i he 'ulu toa 'i Kolovai.**

[p. 42-A]

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

with beating about amongst the islands and shoals as they were and determined to get to an anchor some where or a nother if possible. While the boat was absent, we attempted to turn the Ships through the Channel, between the Sandy isle and the reef of Ogodoo, in expectation of finding a moderate dept[h] of Water behind them to anchor in, but meeting with a Tide or Current against us were obliged to desist and anchor in 50 f^m water with the Sandy isle bearing ESE one mile distant. We lay here till the 4^th during this time we were several times visited by Fattafee the King, Toobow-eitoa, and people from the neighbouring island[s] came off to trade notwithstanding it blew very fresh most of the time. The Master was sent to sound the Channels between the islands to the Eastward and I landed on Ogodoo to examine the island and take a View of the Shoals or reefs about it. I walked all over it, the north part is low land, the soil composed of Sand and Mould. The South end is elevated and the soil a red sandy clay without a stone, every part is cultivated and there are some pools of dirty Water on the low ground and all of them more or less brackish.

Wed. 4 Thur. 5 On the 4^th at 7 AM we wieghed with a fresh gale at ESE and stood away for Anamocka where we anchored the next Morning nearly in the same place where we lay before. I landed soon after and found the Inhabitants very busy in their plantations diging up yams to bring to Market, they were now in the greatest perfection and we procured a good quantity for pieces of iron. Before I returned on board I visited the several places where Mellon seeds & plants had been planted and had the Mortification to find that the most of them were distroyed by a small ant,[1] but [the] Pine-aple plants

Frid. 6 I had planted were in a flourishing state. About noon the next day Feenough arrived from Vaughwaugh he told us that several Canoes laden with hogs &c^a that sailed with him from the island were lost in the late blowing weather and every soul in them perished; but as this melancholy tale seemed not to affect any one of the Indians, I did not beleive it; yet it might be, for it had blown hard for these parts, in so much that the King and others at Ogodoo durst not venture to Sea when we did, but desired I would wait for them at Anamocka which was the reason of my anchoring there the second

Sat. 7 time. The following Morning the King and all those who had been wind bound with him arrived, I was at this time a shore with Feenough and left him to visit the other; who I found seting with a few people before him, but as several came to pay their court to him

[1] The ant in Tonga is called *le*; but there are more than one species, so that it is impossible to identify the criminal.

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

the family sleep on the floor where ever they please to lay down, the unmarried Men and women each by themselves, or if the family is large they have small huts without to which they retire to sleep, so that privacy is as much observed here as one can expect. They have mats made on purpose to sleep upon, and the clothes that they wear in the day, serve them for covering in the night. Their whole furniture consists in a bowl or two in which they make the Cava, a few gourds, Cocoa nut shells, and some small wooden Stools which serve them for pillows and and perhaps a large Stool for the Master of the family.

Food and Cookery Their food and Cookery have been so often mentioned that it is almost needless to add any thing further, Yams and Vegetables makes the greatest part of their food, nay I beleive yams alone does, these they cultivate with much labour and have them in very great perfection. Fish is prefered to hogs[1] and poultry which are the only tame animals they have except dogs; nor is there any wild animals except rats and birds. Thier food is dressed generally by baking in the same manner as at Otahiete, and they have the art of making from different kinds of fruit several dishes which most of us esteemed very good. I never saw them make use of any kind of Sauce, nor drink any thing at their meals, but water or the juice of the coca-nut for the Cava is always drank in a morning. I cannot say they are cleanly either in their Cookery or eating, the generallity of them will lay their victuals upon the first leafe they meet with be it dirty or clean but the Chiefs have their victuals generally served up on green plantain leaves. When the King made [a] meal he was for the most part attended upon by three or four persons, one cut large pieces of the joint or fish, whatever it was, a another cut it into mouthfuls and others stood by with Cocoanuts and what else he might want.[2] I never saw a large company sit down to what we would call a sociable meal, that is to all eat from the same dish; the Victuals, be what it will is always divided in to portions,

wide, clean & cool, we had the Glimpse in many of the inclosures of pretty young women, which convinced us that their principal ladies were kept out of our sight, as they were very shy. . . . In the inside of the dwelling houses, are matts spread on the Ground; & a thick upright mat work 2 or 3 feet high which inclosed a Circular space for the Master & Mistress to sleep in, in the Night; & the principal women are fond of sitting within this kind of fender or skreen in the day time out of doors.'

[1] The point here rather is that hogs were forbidden to commoners. All the land and its products being regarded as the property of the Tu'i Tonga, he, and chiefs deriving their precedence from him, had priority over the mere *tua*. All pigs over a certain size were *tapu* except for chiefs: even their 'owners' could not consume them. The same rule applied to large fishes, which had to be handed over on pain of severe punishment.

[2] These persons were *matapule*, officials of near-chiefly status, though not chiefs, who were appointed for the purpose.

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times the size of the largest we had yet seen. The islands almost incircled us now and we tack'd standing to the NE, but at five stood back again, soon after which two Canoes one with four & the other with three men paddled towards us and came along side without the least hesitation. They brought some Cocoa nuts, Bread fruit, plantanes and sugar cane which they gave in exchange for small nails and knives. One of the Indians came on board and when they left us another Canoe came but did not stay long as night was approaching, for the nearest island was five or six miles off which was that with three hummocks, and sufficiently shows the hazard these people would run to posess a few of our triffling articles. We sounded at this time and had 40 fathom but soon after only 17, on which we made the signal for the Discovery to anchor which we did about six o clock in a bottom of coarse Coral sand with bits of shells.

TUESDAY 29. *Therm.* 75½:76½:80½:79:78:76½. The wind about N except part of the forenoon when it chang'd suddenly and came from WSW with a great deal of heavy rain. The rest of the day moderate breezes with the weather dull or cloudy and a sultry air. About five in the morning we sent two boats to the nearest island which lay in our way and was that mention'd last night, that they might purchase vegetables and meet us as we came up to it. Soon after we weigh'd and stood towards it but made several tacks as the wind was foul, in which time six or seven canoes came from different islands and brought bread fruit, plantanes and yams which they exchang'd as yesterday evening. They also brought several fowls, a great many shaddocks, and an old man who had been on board last night made the Captain a present of a pretty large hog. Besides these they also exchang'd pieces of cloth, fish hooks, small baskets, musical reeds and some clubs, spears and bows, as well as some large wood Pigeons,[1] small rails[2] and large violet colour'd Coots.[3] They retreated when the rain was violent, about which time one of our boats return'd with a considerable quantity of bread fruit, yams, plantanes and some grass for the cattle. The other return'd soon after noon with more vegetables, some fowls and seven young hogs, so that altogether we had procurd as much bread fruit and other Vegetables as serv'd our people to day, which with an addition brought by several more Canoes in the afternoon also ennabled us to spare some to the Discovery and reserve enough to ourselves for another day. Our people were very civilly treated by the Indians at the island, who sold them the bread fruit for a bead each and the hogs for a small hatchet

[1] *Globicera pacifica.* [2] The Spotless Crake, *Porzana tabuensis.* [3] *Porphyrio melanotus.*

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in the open plantane fields. The bread fruit and Cocoa nut trees are interspers'd with little order though chiefly near their habitations, and the other parts of the island, especially towards the sea and about the sides of the lake are coverd with trees and bushes of a most luxuriant growth, the last place having a great many mangroves & the first a vast number of the Fait'anoo trees already mentioned. There seems to be no rock or stones of any kind about the island that is not coral, except in one place to the right of the sandy beach which is the highest part of it, where there is a rock twenty or thirty feet high of a calcareous stone of a yellowish colour and a very close hard texture, but even about this place are large pieces of the same coral rock that composes the shore.

We liv'd on the most friendly terms with the natives while we remain'd here, and obtain'd a much larger supply of refreshment than could have been expected from so small a place, but it should be consider'd that all the small islands around it furnish'd their Quota, and the strangers that brought their hogs and other things were oblig'd to live in temporary huts which they erected or lay themselves down behind bushes or ferns. Besides walking frequently in the country, which we were permitted to do without any interruption, we sometimes amus'd ourselves in shooting wild ducks not unlike the Widgeon[1] which are very numerous upon the salt lake and the other pool. In these excursions we found the people had often deserted their houses to come down to the trading place without entertaining any suspicion that strangers rambling about would take away or destroy any thing about them, but though in these cases it might be suppos'd a great part of the inhabitants were sometimes collected at the beach it was impossible to form any true computation of their numbers, as the continual resort of strangers from other places mixing with them might easily mislead one. However as there was never to appearance above a thousand seen at one time it would perhaps be sufficient to allow double that number for the whole island.

We steerd about NNW towards Káó and Toofóá in our way to Hapaee,[2] an island which Fee'nou said was of a considerable extent, where we could be supply'd plentifully with every refreshment in the easiest manner. He engag'd to go to this place with us himself and seem'd to have some interest in it, for he express'd a good deal of aversion to the Captains intention of going to Amsterdam which he mention'd to him. Although they made us understand that Hapaee lay rather to the NE of Anna'mooka, we were obligd to take this route because there is a cluster of islands lying between Annamooka &

[1] *Anas superciliosa.* [2] Ha'apai.

A [Nomuka--Analyst]

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whole might supply the imagination with an idea of some fairy land realiz'd. It would appear that some of these places may be form'd after the manner we have suppos'd of Palmerstons Island, as there is one which as yet is entirely sand and another that has only one bush or tree. Indeed the appearance of Annamooka in general argues also such a mode of formation, did not its height perswade us that the sea has either made a very sudden recess or that it has begun to do so at a period so remote as scarcely to coincide with the date of the Creation.

At five in the evening we had reach'd Kotoo the most N°westerly of the low islands, a little beyond which is a shoal or reef on which the sea breaks all around. On passing it we were about two leagues from Toofóá, the smoke of which we had seen several times in the day though it had now almost ceas'd. This island is about ten leagues NNW from Anna'mooka and though according to the natives but thinly inhabited has good water. They call the Volcano upon it Kolloo'feea[1] and say it is an O'tooa or divinity, about which they seem to have some superstitious notions. They say it sometimes throws up very large stones and compare the Crater to the size of a small islet, which has never ceas'd smoaking in their memory nor have they any tradition that it ever did. We now hauld our wind and stood ESE towards the islands already mention'd which form here almost a semicircle. At six were about two miles from the shore of one of the largest calld Ma'toogoo,[2] when we sounded and had ground with 55 fathom a fine black sandy bottom, and soon after nearly the same water with a coarser white sand. We then tack'd and stood back having for half an hour between 50 and 60 fathom, when we brought to with the main-topsail to the mast for some time & afterwards stood on to the westward. A great many Egg birds and flying fish were seen in the passage to day, and it was observ'd that after sailing in the morning a tide or current from the westward set us much over towards the islands on the right.

THURSDAY 15th. *Therm.* 72½:73:74½:77:75:74½. Light airs of wind from the S°ward and frequently quite calm with very fine weather. The sea perfectly smooth. Between twelve and one in the morning we tack'd and stood eastward keeping close haul'd to pass to the Southward of Fotoohàà which is the Island next Kàò. At day light were not far from the last place, which is a vast rock of a conic figure with marks on its sides as if made by torrents rushing down. After passing

[1] The name of the volcano is Lofia. *Ko* is the nominative article. Lofia seems also to have been the name of the *'otua* or god who dwelt within the crater, throwing up fire and smoke and stones.

[2] Matuku.

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The master was sent in the cutter to see if there was a passage between the large reef Ko'koppo and 'Kotoo but though he found it clear it was so narrow as not to be worth hazarding the working through it for all that could be gain'd.

TUESDAY 3d. The wind SE. Fresh breezes with fine weather. The master was sent with the cutter to try and find a good passage between Poo'too pootooa and the reef to the SE of us into Ha'faiva but found it would be better to go in to the eastward of Pootoo poo'tooa, though even there it is narrow. He found good anchoring at Ha'faiva but says to the So'ward of that about Matoogoo & the other isles there are a great number of small detach'd shoals which would make it almost impossible to get to the So'ward that way, though the Captain thought he saw it clear yesterday from 'Kotoo. He sail'd round Hafaiva, landed and found it a pleasant island but the water which stood in a pond was little better than that at the other isles. We had a visit from Poulaho in the forenoon who has follow'd us closely from Hapaee and slept at one or other of the islands every night. He brought a present of bread fruit which seems all these small islands can now afford, & to be nearer us he has mov'd from Ha'faiva to Kotoo with two large Canoes since yesterday. He approv'd much of our going to Amsterdam from the time it was first mention'd, and presses Omaee who has been ashore with him these two nights to stay at Amsterdam.

WEDNESDAY 4th. The wind ESE or EbS. Fresh breezes and sometimes brisk squalls during which it generally veer'd to EbN. The weather cloudy and sometimes showers of rain. A considerable sea. In the morning between seven and eight we weigh'd and stood up round the NW part of the reef off Kotoo and then hauld close to the So'ward. We soon came in sight of Anna'mooka and at noon were abreast of it, passing to the Eastward of a large shoal that lyes three leagues west from it. At one afternoon we tackd and then made several boards but could not fetch the island, the N part of which bore ENE five or six miles distant in the dusk of the evening and the S part of Annamooka'eeke SEbE.

The Discovery could not weather the shoal which oblig'd her to make a stretch to the No'ward, by which she fell so far to leeward that we could scarcely see her in the evening. Saw several Terns, Shearwaters, and a good many flying fish in the passage.

THURSDAY 5th. The wind ESE. Strong breezes or brisk gales with dark cloudy weather. A considerable sea. Before day light we kept turning making boards of about two hours and at dawn the N part of

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blind with a disorder of his Eyes. It is probable he precedes the other in rank as he certainly posses'd what we might call the seat of honour, sitting under the tree and fronting us as we walk'd up, while the other sat aside, and indeed it appeard that he was rather disappointed by our addressing Mareewagee first & paying most attention to him.

SATURDAY 14th. The wind Southerly. Gentle breezes with fine weather. The people on shore employ'd as before & those on board mostly in the hold. The natives brought a good deal of fruit and some hogs off & a brisk trade is carried on at the tent. We had a visit from Poulaho who now lives constantly at the house or Ma'laee by the tent, I believe with an intention to superintend or see that no mischief is done by his people. The Captain made him a present of some things but neither of the other chiefs came off as they had promis'd yesterday. He entertaind our people at night with a dance at the tent, and to the surprize of every body the unwieldy Poulaho endeavour'd to vye with others in that active amusement.

A Canoe went to the Buoy where our boats lay and stole an iron pin belonging to one of them, for which we confin'd one in irons who was found in the Canoe though not the principal, but the iron being return'd in the afternoon he was set at liberty.

SUNDAY 15th. The wind SE. Moderate breezes with fine weather. In the forenoon some of us walk'd to the westward of the tent and found the country totally uncultivated for near two miles, though quite coverd with trees and bushes in a natural state growing with the greatest vigour. Beyond this is a pretty large plain on which are some Cocoa trees and a few small plantations that appear to have been lately made, and seemingly on ground that has never been broke in before, but it seems to preserve the same appearance still farther on. We found that several of the principal people, as Maree'wagee, Too'bou, Fee'nou & some others had erected temporary huts to live in while they remaind here, near the path which leads through the uncultivated part immediately west of the tent. Near the creek which runs to the eastward of the tent the land is quite flat and partly overflown by the sea every tide. When that retires the surface is seen to be compos'd of coral rock with holes of a yellowish mud scatterd up and down; and towards the edges where it is a little firmer are innumerable little holes, from which issue as many small crabs of two or three different sorts which cover the place as flies on a carcase, but are so nimble that on ones approaching they disappear in an instant and baffle even the natives to catch any of them.

At this place is an artificial work which shows these people have

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remarkable except a Fyatocka of one house standing on an artificial mount at least thirty feet high. A little on one side there is a pretty large open Area and not far from it a good deal of uncultivated ground, which upon enquiring why it lay waste they seem'd to say belong'd to that place which was Poulahos, and not by any means to be touch'd. There was also at no great distance a number of E'toa Trees on which clung millions of the large Ternate Bats[1] making a disagreeable noise. We could not kill any at this time for want of muskets, but some that were got at Anna'mooka measur'd near three feet when the wings were extended.

On returning our host orderd the hog that had been dress'd to be brought, with several baskets of bak'd yams and some Cocoa nuts, but we found that instead of his entertaining us we were to entertain him, the property of the feast being entirely transferr'd to us his guests who were to dispose of it as we pleas'd. The person who cleand it in the morning cut it up (but not before we desird him) in a very dexterous manner with a knife of split Bamboo, dividing the several parts with such quickness and hit the joints so exactly that surpriz'd us very much. The whole was set down before us, though at least fifty pound weight, untill we took a small piece away and desir'd they would share the rest amongst the people sitting round, but it was not without a great many scruples they did that at last, and then ask'd what particular people they should give it to. They were however very well pleas'd when they found it not contrary to any custom of ours, some carrying off the portion that was given them and others eating it on the spot, but it was with great difficulty we could prevail on Futtafaihe himself to eat a small bit.

After dinner we went with Futtafaihe and five or six people who attended him to the same place where Poulaho had carried us in the morning the last time we were at Mooa, but not into the inclosure. They hung some leaves about their neck in walking to it as he had done, and when we came to a large open boat house where a few people were they threw away their leaves, sat down before it and gave their cheeks a few gentle strokes with the fist, after which they sat for about ten minutes with a very grave appearance & went away without having spoke a single word. Every person who went to this house of mourning had a mat tied over the cloth they wore which was also the case the day Poulaho went. This explaind what Poulaho had mentiond about Tooge, though from the beating only lasting a few seconds he had not been observ'd to do it; and this seems only a

[1] *Pteropus tongensis*; Cf. Bayly, II, p. 263, n. 3. This was evidently the bat that the Tongans called *fanuetoa*.

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unknown ones discoverd by Dr Forster who visited these islands in 1773 and 1774 are not yet wholly publish'd. Besides the Pemphis,[1] Decaspermum,[2] Mallococca,[3] Maba[4] & some other new Genera describ'd by that Gentleman in his Characteres Generum Plantarum, London 1776, there are a few more found here which the different perhaps season of the year and short stay did not suffer him to detect, although it did not appear during our stay that above a fourth part of the trees and other plants were in flower, a circumstance absolutely necessary to distinguish the various kinds by.

The only Quadrupeds (besides hogs) are a few ratts,[5] and some dogs which are not natives of the place but producd from some left by Captn Cook in 1773, and others got from an island call'd Feejee, which must also have been lately, as the breed is not yet so numerous as to furnish the neighbouring isles with any. Fowls which are of a large breed are domesticated here.[6] Amongst the Birds are Parrots, somewhat smaller than the common grey ones, of an indifferent green on the back & wing, the tail blueish and the rest of a sooty or chocolate brown;[7] Parroquets not larger than a sparrow, of a fine yellowish green with bright azure on the crown of the head and the throat and belly red;[8] besides another sort as large as a dove, of a fine green with a blue crown & thighs, the throat & under part of the head crimson, as also part of the belly, and the rest a beautifull green.[9] There are owls about the size of our common sort but of finer plumage,[10] the Cuckoos mention'd at Palmerstons island,[11] King fishers about the size of a thrush of a greenish blue with a white ring about the neck;[12] and a bird of the thrush kind, almost as big, of a dull green colour with two yellow wattles at the base of the bill, which is the only singing one observ'd here but compensates a good deal for the want of others by the strength & melody of its notes which fill the woods at dawn, in the evening and at the breaking up of bad weather.[13] The other land birds are Rails as large as a pigeon of a variegated grey colour with a rusty neck,[14] a black sort with red eyes not larger than a lark,[15] large violet colour'd Coots with red bald crowns,[16] two

[1] Ngingie, *Pemphis acidula.* [2] Nukonuko, *Decaspermum fruticosum.*
[3] Fo'ui, Forster's *Malococca crenata*, now *Gravia crenata.*
[4] Mapa, Forster's *Maba elliptica*, now *Diospyros ellipticifolia.*
[5] *Ratius exulans.* [6] The common Indonesian and Pacific *Gallus bankiva.*
[7] Tongan Parrot, *Pyrrhulopsis tabuensis.*
[8] Blue-crested Parakeet, *Coriphilus fringillaceus.* [9] *Coriphilus solitarius.*
[10] *Strix delicatula.* [11] *Eudynamis taitensis.*
[12] White-collared Kingfisher, *Halcyon chloris.*
[13] Wattled Honey-eater, *Foulehaio carunculata.* [14] Banded Rail, *Rallus philippensis.*
[15] Spotless Crake or Sooty Rail, *Porzana tabuensis.* [16] Swamp Hen, *Porphyrio melanotus*

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136 sorts of flycatchers,[1] a very small swallow;[2] and three sorts of Pigeons one of which is Le Ramier cuivre of M. Sonnerat p. 169,[3] another half the size of the common sort, of a light green on the back & wings with a red forehead,[4] and a third somewhat less of a purple-brown but whitish underneath.[5] Of water fowl and such as frequent the sea are the Ducks seen at Annamooka, though scarce here;[6] blue, and white Herons,[7] tropic Birds, common Noddys, white terns, a new species of a leaden colour with a black crest,[8] a small blueish curlew[9] and a large plover spotted with yellow.[10] The large Bats were mentiond before besides which there is the small common sort.[11]

The only noxious or disgusting animals of the reptile or insect tribe are sea snakes three feet long, alternately ring'd with black & white, often found on shore,[12] some Scorpions and Centipedes. There are fine green Guanoes a foot & a half long,[13] another brown & spotted Lizard about a foot long,[14] & two other small sorts. Amongst the other insects are some beautifull Moths, Butterflys, very large Spiders & others making in the whole about fifty different sorts, but the land animals fall far short of those found in the sea. Fish again are by much the smallest part of these, the variety being much less than might be expected. The most frequent sorts are mullet,[15] several sorts of parrot fish,[16] silver fish, old wives, some beautifully spotted soles,[17] leather jackets,[18] Bonneto[19] and Albicores,[20] besides the eels mention'd at Palmerstones island, some Sharks, rays,[21] pipe fish,[22] a sort of Pike[23] [193] and some curious devil fish.[24] The many reefs and sholes on the N side of the island afford shelter for an endless variety of shell fish, amongst which are many that are esteem'd precious in Europe, such as the true Hammer oyster[25] of which however none could be obtain'd entire, a

[1] Flycatchers are numerous, and these 'two sorts' cannot be pinned down.
[2] Pacific Swallow, *Hirundo tahitica*.
[3] Pacific Pigeon, *Globicera pacifica*.
[4] Many-coloured Fruit Dove, *Ptilinopus perousii*.
[5] Ground Dove, *Gallicolumba stairii*.
[6] Australian Grey Duck, *Anas superciliosa*.
[7] The dimorphic Reef Heron, *Demigretta sacra*.
[8] Brown-winged Tern, *Sterna anaethata*.
[9] Probably a Tattler, *Heteroscelus* sp. Curlews are not blueish, but brownish.
[10] Pacific Golden Plover, *Charadrius fulvus*.
[11] The large bats were *Pteropus tonganus*; when Anderson says 'the small common sort' he evidently refers to the Tongan *peka*, much like the Pipistrel of England and Europe.
[12] *Laticauda colubrina* (cf. II, p. 560, n. 2), or *Hydrophis cyanocinctus*.
[13] An Iguana, *Brachylophus fasciatus*.
[14] Perhaps this was the lizard referred to by Labillardière, II, p. 105, as *Lacerta amboinensis*, which the Tongans said was good eating.
[15] *Mugil* sp.
[16] Some sort of Scaridae.
[17] Possibly either Bothidae or Soleidae.
[18] Balistidae or Monacanthidae.
[19] *Katsuwonus pelamis*.
[20] Probably *Neothunnus macropterus*.
[21] Dasyatidae or Miliobatidae.
[22] Syngnathidae.
[23] *Sphyraena* sp.
[24] *Manta* or *Mobula* sp.
[25] *Malleus* sp.

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large indentated oyster[1] & several others but none of the common sort, Panamas, Cones, a sort of the gigantic cockles found in the East Indies,[a] pearl shell oysters and many others, several of which I believe have been hitherto unknown to the most scrupulous enquirers after that branch of Natural History. There are likewise several sorts of Sea Eggs and many very fine star fish, besides a considerable variety of Corals, amongst which are two red sorts, the one most elegantly branch'd, the other tubulose; and there is no less variety amongst the crabs and Cray fish which are very numerous, to which may be added several sorts of sponge and some animals as the sea hare, Holothuriæ &c. 136 [133]

The natives of these islands (for what is said of Tonga may be applied to the others) seldom exceed the common stature, though we have measur'd some above six feet, but are very strong and well made especially their limbs. They are generally broad about the shoulders and though the muscular disposition of the men, which seems a consequence of much action, rather conveys a notion of strength than beauty there are several to be seen that are really handsome. Their features are very various, in so much that it is scarcely possible to fix on any general likeness to characterize them by, unless it is a fullness about the point of the nose which is very common, but on the other hand there are hundreds of truly Europæan faces & many genuine Roman noses amongst them. Their eyes and teeth are good but the last neither so remarkably white nor well set as is often found amongst Indian nations, though to balance that few of them have any uncommon thickness about the lips, a defect as frequent as the other perfection. The women are not so much distinguish'd from the men by their features as their general form, which is for the most part destitute of that strong fleshy firmness that appears in the last. Though the features of some are so delicate as not only to be a true index of their sex but to lay claim to a considerable share of beauty and expression, the rule is by no means so general as in many other 142 [141]

[a] These are what Dalrymple calls the Mangancy in which he says fine Pearls are found, but they seldom exceed five or six pound weight here. [The reference is to Dalrymple's 'Account of some Natural Curiosities at Sooloo', pp. 8–9, in Dalrymple's *Historical Collection* . . . (1770). Anderson has mis-spelt the name. 'Manangcy, or Keema, called *Humba* by the Chinese, is a shell-fish, generally denominated cockles by our voyagers. . . . Some of them are of an amazing magnitude; it is said on the west coast of Sumatra they have been found so large as to contain fifty gallons in the two shells. . . . These shells are scalloped; the interior part of a perfect milk white, and finely polished, but without it is rough, like a cockle-shell. . . .' Undoubtedly Anderson writes of some moderately large species of Tridacna.]

[1] Perhaps one of the *Avicula*.

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considerable Height & the Island may be called low upon the whole. It abounds with Bread fruit trees, Cocoa nuts, Yams, Plantains & Tarroo root & is well stocked with Hogs & Fowls. We found no great Difficulty in getting the Girls on board, for the Charms of a Hatchet, a Shirt or a long nail they could no more withstand than we could theirs which were far from being despicable. Some of these Girls were exceeding handsome, tho' it was afterwards universally allowed that in female softness & Delicacy they were excelled by the Otaheitean Ladies.

We had been at Anamooka about a Week when there arrived from one of the neighbouring Isles a Chief whose authority was acknowledged to be superior to that of Toobow the King of the Island. He was taken on board the Ship by Capt Cook & treated with respect suitable to his Dignity, & presented with a Cotton Gown, Hatchets, Beads & other Things with which he was well pleased. The Name of the great Personage we found was Phenow,[1] he is about thirty years of age, not robust but tall & well made & exceedingly active & lively with a majestic Countenance & a noble and manly Deportment, his forehead is high, his Nose Aquiline & his Eye penetrating and full of fire, his Hair thick & flowing over his Shoulders. He seemed to be possessed of a mind intelligent, firm, elevated & generous; His manners were free and engaging. In his intercourse with us he shewed a keeness and Penetration that distinguished him as a great Character. In a short time he became a Favourite with all, & tho' afterwards we met with Chiefs of higher rank than him he still continued to be the most popular Man among us while we staid at these Islands. He generally had three or four of his Mistresses attending him who were very handsome women. He made Capt. Cook several Presents of red Feathers, Hogs & Fruits & he spent much of his time on board the Resolution where many things engaged his attention, more particularly the great Guns & small arms; to gratify his Curiosity a great gun was fired with Ball towards the Shore which was about a mile distant, another was fired afterwards on the other side towards the open sea. We saw them both light & the astonishment which they created in Phenow & the other Chiefs who were on board may be much easier conceived than described; two or three more Guns were fired, when Phenow partly terrified with the Explosion & perfectly satisfied with the Execution of them told us that he desired no more. At the same time that this Experiment pleased & gratified the Curiosity of the Indian Chief, it impressed him with a Dread of our Power, which no doubt was of use

[1] Finau. Why Samwell spells the name with 'Ph' is a mystery.

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kept their Drums. The soil is rich & good & the Climate equal & fine like most others situated in the same Latitude, where there is no cold Weather & the Inhabitants are not oppressed with Heat.

The Chief Produce of the Island is Cocoa nuts, bread fruit, Plantains & yams & Sugar Cane, all which the Country affords in great Abundance, & there are some Shaddocks, but not near so many as at Middleburg. Their Hogs are not so large as those of Otaheite nor so numerous, tho' we found plenty to supply the Ships while we staid among them, there are but few Dogs & many Rats on the Island and large Batts. They were very fond of our Cats some of which they stole, for which 2 or 3 of them were flogged on board the Discovery more than once. They have Variety of Birds some of which they used to bring on Sticks to the Ship to sell, such as Pigeons & a beautiful small green & red Parrot and they have plenty of Poultry about their Houses.

The Inhabitants of these delightful Isles are a handsome fine Race of People; the Men are rather above the common size, strong & exceedingly well made, of a dark copper Complexion with black Hair naturally, I say naturally because they daub it over with a Paste made of coral Powder which changes the Colour of it in different places into yellow, so that it is of a mixed Colour yellow & black, and this no doubt is the yellow Hair which Dalrymple takes notice of as having been seen by Quiros & other former Navigators to the South Seas, & which he supposes to be natural & therefore concludes that they are a different race of Men from the other South Sea Islanders who had not this custom among them, and therefore produces it as an Argument for the existence of [a] Southern Continent & that these were some of the natives. This practice is not confined to these people but common among other Islands in these Seas. They tattaw or mark their Loins & Thighs in various Lines according to their fancy, tho' there is an uniformity or standard to which they all approach like the Otaheiteans in tattawing the Breech. Some of them tattaw the Glans Penis. They all shave their beards, which is done with 2 small shells with sharp edges one laid under the Hair while they cut the beard with the other, & by this means they perform the Operation with expedition & get the hair off tolerably clean, tho' they always preferred our Razors when they could prevail upon the Ship's Barber to trim them.

Their Dress consists of a piece of Cloth tyed round the middle which descends as low as the Knee with sometimes a matt over it; others wear what they call a Pooraw[1] which is a Substance between

[1] *pulou.*

[xvii cont.]

000 which voyages of discovery are carried on (8), the nation which

[122] 8. The whole expence of the voyage in which I embarked did not exceed[a] the sum of 25000 l. including all extraordinary disbursements.

favours these enterprizes is amply repaid by the benefit derived to

123 our fellow-creatures. I cannot help thinking that our late voyage

136 [xviii] would reflect immortal honour on our employers, if it had no other merit than stocking Taheitee with goats, the Friendly Isles and New Hebrides with dogs, and New Zeeland and New Caledonia with hogs.

000 It is therefore sincerely to be wished, that voyages of discovery, upon a disinterested plan, may still be prosecuted with vigour, as much remains to be done, even in the South Sea; unless it should be in the power of illiberal men to defeat the great and generous views of a monarch, who is justly called the patron of science. A single remark, which may be of extensive use to posterity; a single circumstance, which may make happy our fellow-creatures in those remote parts of the world, repays the toils of the navigation, and bestows that great reward, the consciousness of good and noble actions.

London,
March 1, 1777. G. Forster

[pp. 1-417 not processed]

a [sic! ... Analyst]

[441 cont.]

175 crossed it, we met with a most delightful walk about a mile in
311 length, formed of four rows of coco-nut trees, which ended in
487 another lane between plantations of great regularity surrounded
by shaddocks and other trees. It led through a cultivated valley
to a spot where several paths crossed each other or met in one.
175 Here we saw a fine lawn covered with a delicate green turf, and
351 surrounded by large shady trees on all sides. In one corner of it
there was a house, which was empty at present, its inhabitants being
175 probably by the water's side. Mr. Hodges sat down to draw this
126 delightful spot. We breathed the most delicious air in the world,
175 fraught with odours which might have revived a dying man; the sea
[136] breeze played with our hair and gently cooled us; a number of small
birds twittered on all sides, and many amorous doves cooed harmoniously in the deepest shade of [442] the tree under which we were
[137] seated. The tree was remarkable for its roots, which came out of
the stem near eight feet above the ground, and for its pods of more
than a yard long, and two or three inches broad. This secluded
spot, so rich in the best productions of nature, where we sat
solitary with no other human being besides our two natives, struck
us with the idea of enchanted ground, which being the creation of
our own gay fancy, is commonly adorned with all possible beauties
at once. In fact, there could not have been a more desirable spot
for a little place of retirement, according to the elegant imagination
of Horace, if it had only been supplied with a crystal fountain or
[312] a little murmuring rill! But water is unfortunately the only blessing
[764] denied this charming little island. To the left of this spot we
[487] discovered a shady walk, that brought us to another grassy lawn, at

175 [448 cont.]
311 Part of it appeared to have been planted
[244] with yams, but the rest was full of grass, and had a little swamp
[133] in the middle, where the purple water-hen, of poule sultane,
[136] resided in great numbers. As soon as we left this, we entered into
[487] a lane about six feet wide, between two fences of reed, which
[417] enclosed extensive plantations on each side. Here we met many of
[609] the natives, who were traveling to the beach with loads of
[201] provisions, and courteously bowed their heads as they passed by us
in sign of friendship, generally pronouncing some monosyllable or
175 [449] other, which seemed to correspond to the Taheitian tayo. The
351 enclosures, plantations, and houses were exactly in the same style
184 as at Ea-oowhe, and the people had never failed to plant odoriferous
175 shrubs round their dwellings. The mulberry, of which the bark is
137 manufactured into cloth, and the bread-tree, were more scarce than
at the Society Isles, and the apple of those islands was entirely
unknown, but the shaddock well supplied its place. The season of
spring, which revived the face of all nature, adorning every plant
with blossoms, and inspiring with joyful songs the feathered
tribe, doubtless contributed in a great measure to make every object
175 pleasing in our eyes. But the industry and elegance of the natives,
311 which they displayed in planting every piece of ground to the greatest
181 advantage, as well as in the neatness and regularity of all their
works, demanded our admiration, whilst it gave us room to suppose,
that they enjoyed a considerable degree of happiness.

175 One of the lanes between the enclosures led us to a little grove,
137 which we admired for its irregularity. An immense casuarina tree
[136] far out-topped the rest, and its branches were loaded with a vast
number of blackish creatures, which we took for crows at a distance,

[449 cont.]

175 136 [137] but which proved to be bats when we came nearer. They clung to the twigs, by the hooked claws, which are at the extremity of their webbed fingers and toes; sometimes they hung with the head downwards, and sometimes the reverse. We shot [450] at them, and brought down six or eight at once, besides wounding several others which held fast on the tree. They were of the kind which is commonly called the vampyre (12), and measured from three to four feet between the

12. La Rougette, of M. de Buffon. Vampyrus of Linné, and Pennant.

expanded wings. A great number of them were disturbed at our firing, and flew from the tree very heavily, uttering a shrill piping note; some likewise arrived from remote parts at intervals to the tree, but the greatest number remained in their position, and probably go out to feed only by night. As they live chiefly upon fruit, it is likely that they commit great depredations in the orchards of the natives, some of whom being present when we fired, seemed very well 175 224 pleased with the death of their enemies. We had seen some of them who had caught these bats alive, and placed them in a cage of wickerwork very ingeniously contrived, with an entrance like that of a fish-basket, where the animal could easily be put in, but could 175 825 196 not come out again. They likewise assured us the bats were very mordacious, for which purpose they seemed indeed to be well provided with large sharp teeth.

175 764 137 [071] We had already observed at Taheitee, at the Society Islands, and even at Ea-oowhe, that wherever we met with a casuarina, a burying-place was at hand. Therefore, at sight of this venerable tree, which was hung with ill-omened creatures, we immediately conjectured that it would [451] lead us to a cemetery or place of worship, and

[478 cont.]

for water, and the master had been sent to the eastward to survey Maria Bay, and the low isles which shelter that harbour. The situation of these islands he found very exactly represented in the charts of the ever accurate Tasman, and on one of them where he landed, he saw an astonishing number of speckled water-snakes, with flat tails, which are harmless, and distinguished in the system of Linnaeus, by the name of colubri laticaudati. In our branch we had not been unsuccessful, this little island having afforded us several new plants, among which was a new species of jesuit's bark, or cinchona, [479] of which the bitter bark may perhaps be equally efficacious with that of Peru. We also collected several birds unknown before, and purchased some live species, particularly of the parrot and pigeon tribe, of the natives, who seem to be very expert fowlers. But it did not appear to us, that the pigeons, which many carried perched on crooked sticks, were marks of distinction, though Schouten at Horne Island where the same custom prevails, is of that opinion (25). In the last boat which

25. See Mr. Dalrymple's Historical Collection, vol. II. p. 46.

had brought our people on board in the evening, the Latoo or king had sent a great quantity of vegetables, together with a whole hog roasted, or dressed under ground, as a present to the captain. In the morning therefore, we embarked early in the pinnace, and rowed to the shore to make a present in return. We found the Latoo sitting at a little distance from the beach; and captain Cook gave him a shirt, a saw, a hatchet, a brass kettle, and several articles of less moment, all which he received with sullen gravity; this deportment he never varied, except once, when he was seen to smile as he conversed with Attagha.

[479 cont.]

000 175 302 184 smile as he conversed with Attagha. Among the croud, we observed a single man, who differed from all the rest, by having suffered his hair to grow, and having twisted it into several round bunches, which hung wildly about his ears. This man, and the young girl mentioned page 468^A were the only persons we met with, who had [480] not conformed to the general custom of cutting off the hair.

175 439 After a short conversation with the natives, of whom we bought a variety of their tools, on account of their elegant carving, we returned on board to breakfast, and immediately after weighed the

175 anchors and set sail. The provisions lying in confused heaps on the decks, prevented our going into the open sea immediately. We therefore kept standing off and on, under shelter of this island, and did not take our departure till towards evening, when we shaped our course southerly.

The next morning [October 8], the weather being nearly calm, we caught a shark, eight feet long, consequently bigger than any

175 101 we had seen before. In the afternoon we saw the little isle which Tasman calls Pylstaerts Island. This name refers to the birds,

175 136 which the Dutch navigators observed there, and which in all probability were tropic birds. Pylstaert literally signifying arrow-tail, alludes to the two long feathers in the tail of this bird, from whence

175 131 its French name of paille-en-queue is likewise derived (26). Its

26. See Mr. Dalrymple's Collection, vol. II. p 75. where they are called wild ducks.

175 latitude is 22° 26' S. and its longitude 170° 59' W. A contrary S. W. wind which sprung up towards evening, obliged us to cruize about till the 10th in the morning, when we came [481] in sight of this

[133] little islet again. It is of a moderate height, and has two hummocks,

[See p. 55 of HRAF manuscript--Analyst.]

[174 cont.]

609 great loads for us; a nail, a bead, or even a small rag of cloth,
M5 being considered as a valuable present in return. In a word, they
[M3] were on all occasions ready to oblige us.

133 [175] In the course of our walk we found a large lake or lagoon
M5 of salt-water, at the north end of the island, which at one place reached within a few yards of the sea. It was about three miles long, and one wide. Three little islands full of trees, arranged in most picturesque manner, served to ornament this fine piece of water, of which the shores also captivated the eye by their variety and beauty. The inverted landscape on the water, rendered this scene still more beautiful, especially as our point of view was an eminence, where many tall trees and thick shrubberies screened us from the sun.

133 No island, which we had hitherto visited, had offered so great
137 variety of views to us in so small a space; nay, we had no where found
M5 such abundance of beautiful flowers, so agreeably contrasting their various tints, and mingling their sweet scents to perfume the air.

136 The lake was full of wild-ducks, and the woods and shores abounded with
499 pigeons, parroquets, rails, and small birds, which the natives brought
M5 for sale.

499 At noon we returned to the trading place, where captain Cook had
M5 purchased a great quantity of fruit and roots, a few fowls, and one or two small pigs. When we arrived on board, we found they had been equally successful there in the purchase of provisions. The whole poop was loaded with shaddocks, which we found a most delicious fruit, of excellent flavour; and of yams we had laid in such a quantity, [176] that we eat of them every day for several weeks afterwards instead of biscuit. Arms and utensils, the usual articles of trade of these

[183 cont.]

142 had ever seen in these isles, full of sweetness and the charms of youth.
175 Her large dark eyes sparkled with fire, and her ebon curls floated
[291] on her neck. She was of a lighter colour than the common people and wore a brown cloth which closely embracing the body immediately under the breast, but being somewhat wider [184] towards the feet, perhaps suited her better than the most elegant European dress.

648 Mr. Patton having been sent for, arrived with proper instruments,
175 and dressed the wounds of the poor native, whose countrymen brought
[758] many banana leaves, which were laid on over the dressing. A bottle of brandy was given them, with directions to wash the wounds with the liquor from time to time. The wound was not dangerous, as it happened in a fleshy part; but as the distance was so short, the shot had torn the flesh very much, and made the wound very painful to the poor man. After this we distributed some beads, and departed making various signs
499 of friendship. The natives like those of Tonga-Tabboo, were strangers
175 to resentment, and continued to trade with our ship as before. They seemed to possess a truly mercantile spirit, and spared no trouble
● [186] to obtain some of our goods or curiosities. Among the rest, they were much delighted with a great number of young puppies which we had taken on board at the Society Islands, on purpose to stock such islands as were not provided with them. We left two couple on Namoka, of which
502 the natives promised to take particular care. These people managed
481 their canoes with surprising agility, and swam with the greatest ease.
175 Their common trading canoes were neatly made, and polished like those
501 which I have already described. But those of the neighbouring islands
175 were of a great size, and some [185] of them contained upwards of fifty people. They always consisted of two large canoes, fastened by a

[193 cont.]

122 announced to us that the island was inhabited.

175 The next morning [July 3] we bore down upon it again, and came
177 round its east end. It appeared to be about seven miles long, and
175 had two small hills of very gentle ascent, [194] wholly covered with
177 woods, like the rest of the island. One end sloped into a flat point,
193 on which we observed fine groves of coco-palms, and fruit-trees, together with houses in their shade. A fine sandy beach surrounded the shore, and at the distance of half a mile, a coral reef encompassed the east side of the island, which at the points projected near two miles from
175 the shore. On this reef we soon perceived five blackish-brown men,
177 with clubs in their hands, looking at us very attentively. We hoisted a
609 boat out, and sent the master to sound an opening between the reefs which we saw before us. He went on through the entrance towards the shore, where we observed upwards of thirty inhabitants sitting. Amongst them ten or twelve were armed with spears; but as soon as our boat came near, they hauled a canoe into the woods, which had brought their five men to and from the reef, and all ran off when the master landed.
[193] He laid some nails, a knife, and few medals on the sandy beach, and returned on board, to acquaint the captain that there was no bottom in
175 the entrance of the reef, and not sufficient depth within it. He had
177 observed a dozen or more large turtles swimming in the harbour; but
136 being destitute of harpoons, or other instruments, could not strike any
122 of them. Our boat was hoisted in again, and the hopes of botanizing
175 on this island were entirely frustrated. We continued standing along
177 its reef, on which we observed some large single rocks of coral, near
[126] fifteen feet above the [195] surface of the water, narrow at the base,
[193] and spreading out at the top. Whether an earthquake had raised them so

87: Wood M,Y-4,5 (no date) 1932 0U9 Tonga 0U9

ocean-floor, and when subsidences occur along this line earthquake-shocks are felt in New Zealand and other places to the west of this ocean-valley. 133

The Tongan Islands run north and south in two parallel chains, the western volcanic and the eastern coralline. The volcanic islands descend steeply into the sea, but the coral islands have barrier reefs round them.

The western volcanic islands extend in a direct line from 'Ata to Niua Tobutabu and Tafahi, only Niua Fo'ou being off this line to the north-west. They are part of a volcanic chain which stretches from New Zealand through the Kermadec Islands to Savai'i in Samoa. Eruptions frequently occur along this chain not only in some of the islands but also under the sea. Sometimes a new island, like Falcon Island, is formed by these submarine eruptions, and at other times no land appears but the sea is filled with pumice and ash which float on to the beaches of Togatabu and other islands.

The coral islands in the eastern chain have been built up by countless myriads of tiny animals, the coral polyps, in the millions of years gone by. These polyps are still working and dying, leaving their skeletons to form gradually the reefs and islands that strew these seas. The reefs of to-day are the islands of the future. [136]

Volcanic material forms the base of all the islands we call coralline, the coral limestone being merely the upper part. Falcon Island shows how islands have been made throughout the Pacific, and it illustrates the way in which volcanic activity has heaved a part of the ocean-floor so close to the surface that coral polyps could work there. Coral polyps cannot live more than 150 feet below the surface of the sea, but neither can they live above high-water mark. Therefore it is also clear that high coral islands like 'Eua and Vava'u have been further uplifted by earth-movements at various times during past ages since the work of the coral polyps ceased. All this took millions of years, and obviously elevated coral islands like 'Eua must be very old indeed. Scientists who have visited 'Eua have shown, from the various layers in the cliffs, that 'Eua has been lifted higher at many periods and that it must be one of the oldest islands in the Pacific. The action of the weather—rain, wind, etc.—for millions of years has completed the work, and has worn and smoothed the islands into their present shape. Coral islands have one side comparatively high (the liku) and the other a low, shelving side. [136]

When our islands first appeared as reefs above the water, and for long afterwards, they were mere rocks without soil. Gradually, however, birds dropped some seeds, and others like coconuts were borne by the waves from other islands and washed up on to the reefs. Such seeds grew, and in time they died, decayed and formed soil, and in this soil other plants grew. This process required many ages, but now these islands are covered with soil, which is nowhere very deep, not more than 12 feet in most places in Togatabu and generally much less; and below that is the coral limestone, the only kind of stone on a coral island. 134

Many of the present reefs serve a useful purpose as barrier reefs protecting the low islands, although they are a great danger to navigation. 133

(NOTE. The maps of the various parts of Tonga should be studied to make these explanations clearer.) 000

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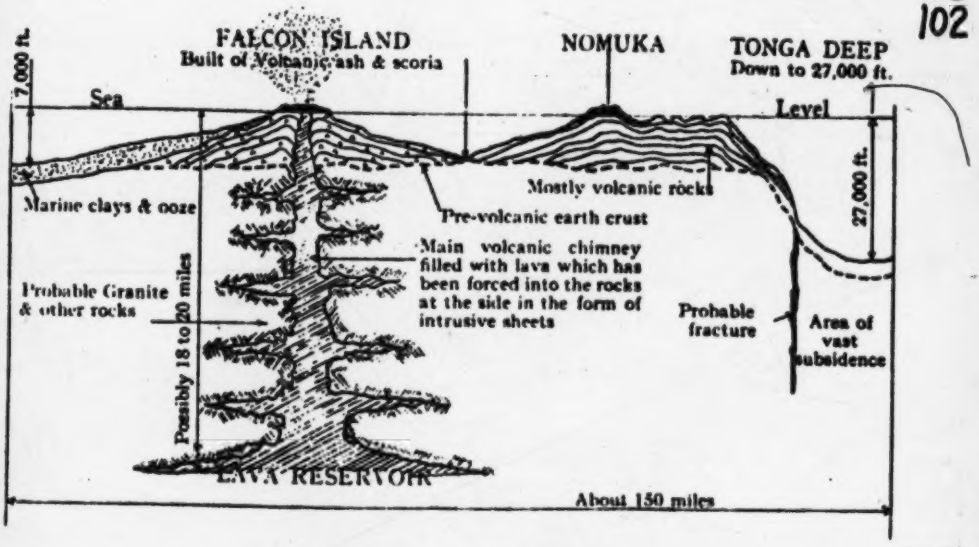

133

FALCON ISLAND.

ALTERNATELY AN ISLAND AND A SHOAL IN THE TONGA OR FRIENDLY ISLANDS GROUP.

Theoretical diagram after T. W. EDGEWORTH DAVID, K.B.E., F.R.S.

(4) FALCON ISLAND (Fonua Fo'ou). This "Jack-in-the-box Island" has erupted and disappeared several times within living memory, leaving only a reef or shoal. The Spaniard, Maurelle, in 1781, and the Frenchman, La Perouse, in 1787, marked a reef near this spot. H.M.S. "Falcon" observed the island in 1865, and in 1877 H.M.S. "Sappho" saw smoke there rising from the sea. In 1885 the island appeared again and was claimed by the Tonga Government; but gradually it vanished, and by 1898 only a reef remained. The reason for the disappearances of Falcon Island is that it is formed only of volcanic ash, which is easily washed down by the rain and waves. No growing coral has ever been found there.

[175]

[136]

The last appearance occurred in October, 1927, when smoke and steam rising several thousand feet could distinctly be seen from Nuku-'alofa, 45 miles away. In May, 1928, the island was visited by scientists and also by the Premier of Tonga, who annexed it for the Government. The island was then roughly circular, about two miles across, and 365 feet high. The crater was near the south-east of the island, nearly a mile

[423]

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133 wide, constantly steaming, and surrounded by deposits of sulphur. The prevailing South-East Trade Winds carried the ejected material to the north-west of the island. Water entered the crater-lake from the ocean, as the eastern wall of the crater was very low; the water in the lake was thickly coated with sulphur and had a vile taste. Already in 1928 the waves were breaking down the soft cliffs, and the rain had made deep gullies down the slopes. It is the opinion of scientists that occasional sinkings of the ocean-floor in the Tonga Deep, which sometimes cause earthquakes in New Zealand, at other times cause lava to be pumped up through the opening in Falcon Island, and this accounts for the periodical re-appearance of this island of soft ash and scoria. Since 1928 smoke has been seen at various times, but the island is being washed down again.

133 (5) TOFUA is a large island, 1,700 feet high, over five miles long
131 and about four miles wide. Its area is 21 square miles, of which over three square miles is the area of the lake in the crater of the active volcano, which the Tongans call Lofia. Smoke can often be seen issuing
133 from the summit of this volcano, but there is no record of any destruction caused in recent years. Formerly the island was inhabited, the village
175 being called Manaka. In 1789, when Bligh and his loyal sailors, who
648 had been cast adrift from the "Bounty" between Nomuka and Tofua, landed at Tofua to get water, they were attacked by the natives who
166 killed the quartermaster, Norton. The island has been deserted since 1854, when Tubou I ordered the inhabitants to leave because of the risk of eruptions. Tofua and Kao are now used only for gardening by people
311 from the neighbouring small and crowded islands of Fotuha'a, Matuku
136 and Kotu; these people also occasionally hunt the wild pigs with which
224 Tofua is infested.

133 (6) KAO is an extinct volcanic island, a perfect cone like Egmont in New Zealand and Fujiyama in Japan. The summit, called Tokonakao, is 3,380 feet high, the highest point in the Tongan group, and easily visible from Lifuka, 35 miles to the eastward. There was a village on the island long ago, but on the shore, not on the summit as an old story states. The narrow channel between Tofua and Kao is deep.

[131] (7) LATE has a dormant volcano which has not erupted since 1854. Its area is over six square miles and height 1,700 feet; it has two craters and a small lake. The peak is plainly visible for 50 miles on clear
[166] days, and has always been a landmark for navigators. Late was formerly inhabited, but its people were taken to Huga, Vavau; it still contains the remains of a fort with a stone wall. The island is very fertile and densely-wooded.

[131] (8) FONUALEI is 40 miles N.W. of Vava'u and 600 feet high.
[175] It was discovered by the Spaniard, Maurelle, in 1781; he named the
[103] island Amargura (Spanish for "bitterness"), because of his disappointment in not getting food and water there. Though the volcano at Fonualei has been dormant for some years, in 1846 it threw ashes over such a great area that the gardens in Vava'u were spoiled, and some ashes were borne by the wind to ships as far as 500 miles away. The Government
166 now forbids habitation there and on the neighbouring small island, Toku. Toku was formerly inhabited by refugees from Ha'amea, near Nafualu, Togatabu, where tribal fighting often took place. The people of Toku had gardens on Fonualei, but they now live at Utulei, Vava'u.

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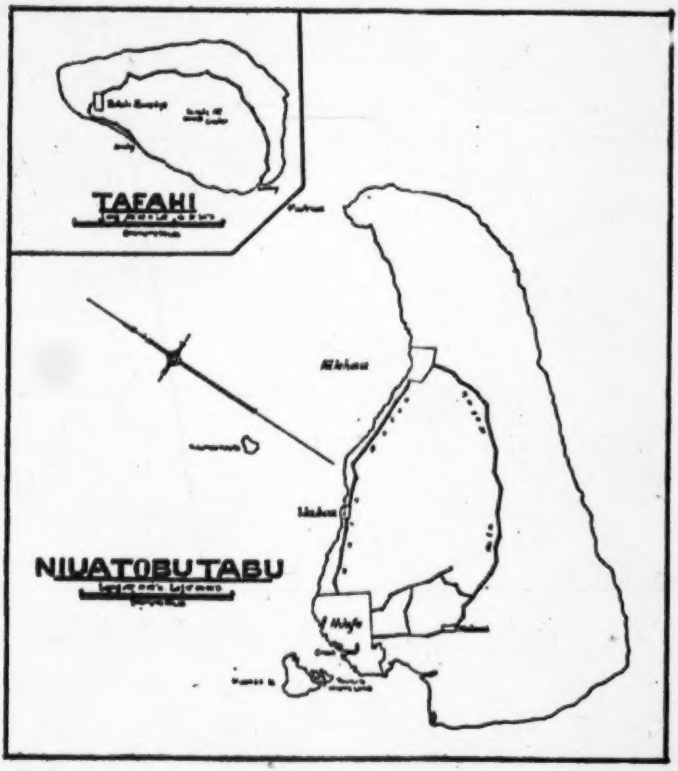

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(9) NIUA TOBUTABU is 167 miles north of Vava'u. The island may be classed as of volcanic formation though there is no sign of any recent activity there. Niua Tobutabu is generally flat but rises to a hill 350 feet high in the centre. The area is nearly six square miles, and there are four villages with a population of 743. The island is subject to hurricanes, the last severe one having taken place on 26th December, 1930. The rhinoceros beetle which entered from Samoa threatened to destroy the coconuts within recent years, but it has now been exterminated. There are two large stones on the island, called Fakafafa, said by a legend to have been placed there by Maui. A spring with its small stream, Niutoua, is an unusual sight in Tonga. The first Englishman who came to Tonga, Captain Wallis, in 1767, named Niua Tobutabu Keppel and Tafahi Boscawen, after two English admirals, and Keppel is the name still often used by Europeans for the former island.

133 [131] [131] [162] 731 [136] 133 175 103

(10) TAFAHI is an extinct volcano with an elevation of 2,000 feet, a cone-shaped and very rocky island containing one small village. Tafahi was the first part of the whole group seen by Europeans, the Dutch voyagers, Schouten and Lemaire, in 1616. They called Tafahi Cocos Island because of its trees; and Niua Tobutabu Traitors' Island because of the treacherous attack made on them by Ma'atu and his people.

133 175 [103] [648]

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Disastrous hurricanes frequently occur, and the island has been ravaged as recently as December, 1930, February, 1931, and March, 1932. During the hurricane season Niua Fo'ou is not visited by small craft. Though the island has been so repeatedly devastated by eruptions and storms, and its condition seems to be more dangerous than that, for instance, of the uninhabited large island of Tofua, still there is no intention of abandoning it for a safer home closer to the main islands of the group.

Its present population is 1,291. The inhabitants are a distinct type, with local variations of the Tongan language due to ancient contact with Samoa and Uvea, but more intercourse with the rest of the Tongan group is causing these old words to fall into comparative disuse.

The "Tin-can Mail" is Niua Fo'ou's claim to distinction. As the harbour at Agaha is inconvenient, and the sea is generally too rough for canoes, the mail is taken by swimmers to the steamer which passes from Samoa to Fiji. The outgoing mail is generally wrapped in oiled paper and tied to sticks, and the inward mail is brought back from the steamer in a sealed tin-can.

THE CHIEF CORAL ISLANDS, WITH SCENIC AND HISTORIC PLACES.

'EUA. This island, which is of great age geologically, reaches a height of 1,078 feet, and has an area of 33 square miles. Although it is as large as Vava'u and contains fertile soil in abundance, its population of 348 is most disproportionate. Its inadequate harbour at 'Ohonua and the sometimes dangerous channel between the island and Togatabu, though disadvantageous to the progress of 'Eua, do not really explain the decline in its population; this is due rather to the proximity of Nuku'alofa with its attractions. Considering that many small islands in Ha'abai support numerous taxpayers who have no allotments, the neglect of 'Eua is regrettable.

'Eua was called Middelburg by its discoverer, Tasman, and Cook had a high opinion of its beauty and fertility. This island is unique in several respects. It has several small creeks which rise from springs in the hillsides and descend to the western shore;

[TEXT CONTINUED ON PAGE 79]

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

and mobs of untended horses roam through the island. It contains varied scenery, valleys, and precipitous cliffs lining the eastern coast.

TOGATABU. This name (Sacred Tonga), as well as the others used by the people (Great Tonga and Chiefly Tonga), attests the importance of the largest island in the minds of generations of Tongans. From the foundation of Tonga to the present it has been the residence of the kings and the centre of religious and social life, and modern investigation has confirmed the native tradition that Togatabu was settled before Ha'abai and Vava'u. The island is 99 square miles in extent, with its extreme length 18½ miles and greatest breadth 9 miles. The southern coast is rather higher than the northern, where the capital, Nuku'alofa, is situated opposite the only openings in the reef which surrounds the island; but Togatabu generally is low, except in the east where the land rises to 270 feet. There are three main roads traversing the island from west to east and several cross-roads. The present population is 12,357, of whom 11,660 are pure Tongans.

Nuku'alofa is the capital, the residence of the sovereign, and the centre of government and trade for the whole group. The Palace and Royal Chapel are conspicuous buildings; and the royal dais in the chapel is finely carved. The tombs of the present line of kings are at Mala'e-kula, in the centre of the town. Behind the British Consulate is a hill (Zion), the site of the old fort described by Mariner.

Mu'a, which consists of two villages, Tatakamotoga and Labaha, was the ancient capital; the kings of the Tu'i Toga line after Tu'itatui resided at Labaha, as also did the Tu'i Ha'atakalaua, and the southern village of Tatakamotoga belonged to the Tu'i Kanokubolu. In Mu'a there was also a renowned enclosure, Fanakava, which was a sanctuary for refugees from justice. The most remarkable feature of the Mu'a district is the series of 28 tombs (lagi) of the ancient kings. Each of these is a rectangular structure, covering as much as three-fourths of an acre, with from three to five terraces in pyramidal form, built of blocks of stone the largest of which weigh 30 tons each. Many of these tombs are well-preserved and easily accessible, especially the Baebae of Tele'a, whose smooth surfaces and L-shaped corner-stones have won the admiration of experts. Such striking examples of the skill of ancient Tongan stone-masons afford one of the finest sights in the South Seas.

At the extreme east of the island, at Heketa near Niutoua, there is situated the famous trilithon known as the Ha'amoga-'a-Maui. This was built by the Tu'i Toga, Tu'itatui, about the year 1200, probably as a gateway. The upright stones are 17 feet high, and the cross-piece is 19 feet in length. Nearby are the stone where Tu'itatui sat, the Maka Fakinaga, and two tombs from the same period.

The remains of "Captain Cook's tree," called Malumalu 'o Fulilagi by the people, may be seen at Alaki. It was here that Cook was entertained in 1777 when he visited the Tu'i Toga and saw the presentation of first-fruits.

Stalactite caves near Haveluliku on the southern coast, like those found in other parts of Tonga, seem to have been used for burials in ancient times.

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Ha'ateiho is the place where three London Missionary Society missionaries were killed in 1799. At Bea may be seen the spot where Captain Croker was killed and three naval guns were captured in 1840.

There is a good example of an old fort in fair preservation at Hule, near Nukunuku. The most remarkable of the numerous trenches of the island is known as the Keli-'a-Belehake, which extends from Vaotu'u to Nukunuku, Te'ekiu, Masilamea, and back to the southern coast at Fahefa; tradition states that this was actually dug in a single night during a war between the men of Hahake and those of Hihifo led by Vaha'i, at some undetermined time probably in the early 19th century. The name of a hamlet, 'Umutagata, also in the western district, recalls a rare instance of human cremation and cannibalism.

At Kolovai there is the enclosure where the former Tu'i Kanokubolu were invested with office; a piece of the koka tree under which these kings sat has been placed in the modern coronation chair at Nuku'alofa. The tombs of these kings are also at Kolovai. This village is well-known to tourists as a sanctuary for great numbers of flying-foxes.

Houma, on the south-west coast, is noted for the blow-holes which extend along the cliffs for a considerable distance.

In the extreme north-west of the island, at Ha'atafu, a monument stands to mark the landing-place of the first Wesleyan missionaries (1826). Tasman in 1643 and Cook in 1773 also landed nearby.

Navigation lights now stand at Ha'atafu, Nuku'alofa and Malinoa, an island north of Nuku'alofa. The quarantine station is situated at Makaha'a, another island off Nuku'alofa.

Ancient stone-quarries are to be seen at Motutabu and Bagaimotu, small islands not far from Nuku'alofa. It seems more than probable that the stones used in the great tombs (lagi) at Mu'a and elsewhere were cut at these places, and certainly not at Uvea and other distant islands to which old native traditions refer.

HA'ABAI. It is considered that this name is derived from Savai'i, the island in Samoa from which the ancient Tongans probably came. Ha'abai is a scattered archipelago of small islands, the total area of which is less than that of 'Eua, if the uninhabited volcanic islands of Tofua and Kao are excluded. Yet these islets support a population of 6,410, most of whom have small tax-allotments or none at all, and despite the difficulties of getting a livelihood—difficulties which hurricanes and droughts have increased in recent years—the number of people who have gone to take up land in Togatabu and Vava'u is not considerable. The people of Ha'abai have always been renowned as skilful navigators and fishermen.

The Governor of Ha'abai resides at Bagai, Lifuka, which was also the boyhood home and always the favourite residence of Tubou I. Cook was entertained at a great festival and a plot was made against his life on this island in 1777. Mariner's vessel, the "Port-au-Prince," was also attacked here, and the cemetery of the murdered sailors is at Koulo, Lifuka.

Uoleva, now uninhabited, has a remarkable number of pigeon-mounds used by chiefs in ancient times, also an old sunken road of unknown use extending through the island.

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

VOLCANOES.

The active volcanoes are Tofua and Fonua Fo'ou (Falcon Island), which have been described. Niua Fo'ou erupts every few years and is classed as dormant. Late and Fonualei may be called dormant, though many years have elapsed since they last erupted. 'Ata, Huga Ha'abai, Huga Toga, Kao and Tafahi are quite extinct. Submarine eruptions have been reported in recent years south-west and north-west of Togatabu, between 'Ata and Huga Toga.

LAKES.

In the craters of Tofua and Niua Fo'ou there are fairly large lakes, the lake in Tofua covering over three square miles, and those in Niua Fo'ou totalling six square miles. There is a shallow, salt lake or lagoon in Nomuka, 443 acres in extent; this lake is remarkable for its fish ('ava) which remain fresh for two or three days. There is also a small and fairly shallow lake in south-west Vava'u.

Except small creeks which flow from springs in 'Eua, and one in Niua Tobutabu, there are no rivers in the Tongan group, owing to the islands being small and mostly flat. Consequently, there is no wild animal life, and birds are comparatively few.

CLIMATE, ETC.

The climate of Tonga is semi-tropical and not as hot as Fiji and Samoa. Nevertheless, in midsummer the humidity is fairly severe, especially in the northern islands. Cool nights are generally experienced in Togatabu and 'Eua, and, compared with conditions in many other Pacific Island groups, the climate throughout Tonga is healthy.

The rainfall is fairly heavy, but much less than in Fiji and Samoa. The wet season is from the end of December to April; short but injurious droughts are sometimes experienced, more especially during the period October–December. The soil on coral islands is very porous, and water can be obtained by digging wells, but under modern conditions the people rely entirely on cement cisterns for drinking purposes.

Systematic meteorological records have been taken at Nuku'alofa only during the last six years (a comparatively dry period), and these include the following:—

Temperature:	Maximum,	90.4 degrees (January, 1930).
	Minimum,	51 degrees (July, 1930).
	Mean,	74.6 degrees.
Humidity:	Maximum,	100% on several occasions.
	Minimum,	49%
	Mean,	76.9%
Annual rainfall:	Maximum,	74.39 inches (1927).
	Minimum,	40.66 inches (1930).
	Mean,	62.9 inches.

Greatest number of days on which rain fell in one year: 193 (1927).
Least number of days on which rain fell in one year: 153 (1930).
Most rain in any 24-hour period: 8.52 inches (June, 1931).

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132 The prevailing winds, which considerably temper the heat, are the South-East Trade Winds. The ocean-currents are also from the south-
133 east; interesting proof is found in the fact that wreckage from the steamer "Tahiti," which foundered about 500 miles south-east of Togatabu in August, 1930, had drifted to the east coasts of Vava'u and the Ha'abai islands by the following December.

132 Hurricanes are seldom experienced in Togatabu, but they some-
731 times occur in the northern islands where they work great havoc to plantations and buildings. The most disastrous hurricanes of recent years happened in 1912 and 1913 in Vava'u and Ha'abai. Niua Fo'ou was ravaged by successive blows in December, 1930, February, 1931, and March, 1932, and the hurricane of December, 1930, destroyed almost every house in Niua Tobutabu.

731 Earthquakes are fairly common but are not severe, as a rule.
133 Instances of damage caused by tidal waves accompanying shakes are recorded in some places such as Lifuka and 'Uiha, low islands of Ha'abai.

ANIMALS AND PLANTS.

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439 Pigs, fowls and rats seem to have been brought to Tonga many
175 centuries ago; as already noticed, Tasman, Cook and other voyagers
224 exchanged iron goods for pigs and fowls. Hunting rats was a favourite
262 sport of the chiefly archers in former times. Pigs and fowls still form the only meat-diet of the village-people. Their gardens are often spoiled by roving pigs; and these creatures infest some uninhabited islands such as Tofua, while the distant island of 'Ata swarms with fowls. Snakes
136 are unknown, but there are several varieties of lizard, including a green lizard (fokai). There are numerous insect pests, such as centipedes and mosquitoes.

23 Europeans have introduced horses, cows, goats, turkeys, etc.
175 Cook presented the first horses, cows and sheep to Bau, Maealiuaki and
177 Finau in 1777; the cattle were called Cook's "pigs" (buaka Tute) by the natives, a circumstance which has given rise to the fiction that Cook brought pigs to Tonga. These islands are not very suitable for sheep.

Government statistics show the following animals in Tonga in 1931:—7,467 horses, 1,661 cattle, 7 sheep, 18,231 pigs, 4,028 dogs, and 2,148 goats.

136 In 'Eua there is a green parrot which will not breed if taken else-
where. Probably the strangest bird in the group is the megapodius (malau) at Niua Fo'ou which flies badly and leaves unusually large eggs to be hatched in the sand; this bird is also found in the Solomon Islands
237 but nowhere between that group and Niua Fo'ou. The tavake is a bird
566 whose blood-red tail-feathers were worn only by chiefs. As previously stated, the absence of running water accounts for the rather small number of birds in the group.

Reference has already been made to the large number of flying-foxes which find sanctuary at Kolovai, in Western Togatabu.

The sea everywhere abounds in fish, and sharks are plentiful.
226 The people are expert fishermen, but of all their methods none is stranger

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

£4,556 ; timber £4,430 ; sugar £4,208 ; benzine £4,082 ; kerosene £3,310 ; galvanized iron and manufactures £3,043 ; biscuits £2,841 ; machinery £1,747 ; rope £1,230. 439

The chief country from which goods are imported is New Zealand. Its proximity and the steamer communication give New Zealand an advantage over Australia, whose trade with Tonga has slightly fallen off. Trade with Japan is increasing, as a result of the operations of a Japanese firm. The bulk of the trade, however, is still in the hands of British firms.

The chief countries of origin, with imports and their average total value for the last eight years, are these :—

New Zealand (£67,543) : Tinned meat, drapery, sugar (Fiji sugar refined in New Zealand), butter, furniture, timber, spades, rope, shoes, soap, carts.

Australia (£51,286) : Drapery, flour, biscuits, harness, shoes, furniture, galvanized iron, bacon, jam.

Great Britain (£28,657) : Hardware (tools, knives, etc.), machinery, galvanized iron, cement, motor cars, drapery, bags, matches, bicycles.

United States of America (£13,946) : Benzine, kerosene, timber, motor cars, axes, salmon, typewriters, salt, torches, musical instruments, rifles, cameras, lamps, sewing machines.

Japan (£2,452) : Silk, matches, toys.

Fiji : Sugar, biscuits.

Canada : Motor cars, salmon.

Germany : Pianos, lamps, toys, watches.

France : Perfumes, soap, sardines.

Sweden : Matches, enamel ware.

COMMUNICATIONS.

Although the first steamer to cross the Pacific, the American ship "Monumental City," actually called at Togatabu, and it was hoped that at least Vava'u harbour might be included in the regular trans-oceanic route, the subsequent development of Fiji has acted to Tonga's detriment, and to-day Tonga is in the backwater of steamer-communication. Until the early months of 1932 a passenger steamer of the Union S. S. Co. of New Zealand sailed monthly from Auckland to Fiji, and called at the three Tongan ports and Apia, Samoa, before returning to Suva and Auckland. Owing to trade-depression these sailings have ceased, and at present Tonga is served only by a monthly fruit-steamer and cargo-boat. Because of the danger of the rhinoceros beetle entering from Samoa, direct communication from that group was forbidden until this year (1932). 648 505 [136]

Occasionally, other steamers (chiefly British, Norwegian and American) call to load copra and to discharge cargoes of timber, benzine, kerosene, etc. [439]

Inter-island communication is provided by the Government motor-vessel "Hifofua" and by numerous cutters. The distance from Nuku-'alofa to Lifuka is 99 miles, and to Vava'u 169 miles : from Vava'u to Niua Fo'ou is 211 miles, and to Niua Tobutabu 167 miles. 505 [655]

137

rotundus); sakisi (Euphorbia hirta); pakopako or pakopako 'ae kuma (Kyllingia monocephala); vailima (Paspalum conjugatum); tamole (Portulaca oleracea); mo'osipo (Fruimfetta bartramia) (Merrill, 1945; Stone, 1970; Yuncker, 1959).

136

Fauna

In contrast to the rich surrounding marine fauna, Tongatapu is poor in indigenous terrestrial fauna. Apart from the fruit bat or flying fox (Pteropus tonganus) and a small insectivorous bat (possibly Emballonura semicaudata) (Derrick:1951), there are no native mammals. There are no amphibians, and terrestrial reptiles are represented by a small number of lizards, skinks, geckos, and the banded iguana (Brachylopus faciatus). Native birds include rails, herons, kingfishers, doves, fruit pigeons, cuckoos, owls, and numerous sea birds. Native invertabrates, especially insects, are well represented by mosquitos, flies, bees, beetles, aphids, ants, cockroaches, centipedes, spiders, scorpions and nematodes, as well as many other groups; some of these have a significant effect on the Tongan agricultural system.

The introduced fauna, however, seems to have had a greater effect than the native fauna on the agricultural system. The Polynesian rat (Rattus exulans), the pig, the dog and the fowl were supposedly introduced by early Polynesian inhabitants. The roof or ship rat (Rattus

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231

136 231 rattus), the Norwegian rat (Rattus norvegicus), as well as cats, cattle, horses, goats, sheep , turkeys, ducks, and possibly insects such as the rhinoceros beetle (Oryctes rhinoceros) and fruit flies were introduced after European 231 contact. Dogs, cats, pigs, cattle, horses, goats, chickens, ducks and turkeys are presently important domesticated 136 animals. There are presently no sheep in Tonga. Rats have become naturalized, and cats and chickens are represented by feral stock; there were formerly also feral pigs.

The fruit bat or peka is nocturnal and feeds almost exclusively on fruit such as bananas, mangoes, and papayas. Although the fruit bat population is increasing, the [262] problem is not considered serious. Furthermore, the peka [565] provides an excellent source of protein, which, although supposedly reserved as a delicacy for the nobility, is eaten occasionally by commoners.

[241] Rats constitute a major nuisance and cause considerable damage to a variety of crops. Owing to the economic 245 importance of copra, most of the research concerning rat 136 damage has been focused on its effect on coconut production. Estimates of loss in coconuts have ranged up to 80 percent. Recent studies, however, indicate that this is a gross overestimation and that loss of yield in any individual stand of coconut palms is rarely over 10 percent (Pierce, 1971b: personal communication). Rattus rattus comprised 80 percent of all rats trapped in coconut palms during the

245
136 recent survey (Pierce, 1971a: 4).

136 Rattus exulans and R. norvegicus seem to be less
241 arboreal and, according to a recent survey by Agricultural Department personnel, account for most of the rodent damage to ground crops. The common field mouse (Mus musculus) may also be present and responsible for crop damage (Pierce, 1971b: 1). Results of this survey indicate that rodent damage to watermelons often reaches 30 to 50 percent of the total crop; damage to maize is commonly 30 to 60 percent with 90 percent losses in severe cases; and peanuts, sweet potatoes, and cassava all sustain some damage. Rattus norvegicus seemed to be more common than R. exulans in most habitats. (Pierce, 1971a: 2-4) The author has also observed severe rat damage to all of these crops as well as to papaya and pumpkins.

Native birds are responsible for high losses of crops such as corn, strawberries, papayas, mangoes, and tava (Pometia pinnata). Two species which are particularly bad pests are the banded rail (Rallus philippensis) and the
136 purple swamp hen (Porphyrio porphyrio). Birds also seem
137 to be the major dispersal mechanism for Carica papaya and Cordyline terminalis as well as weedy species such as
136 Lantana camara and Psidium guajava. The native barn owl (Tyto alba) probably has some limiting effect on the rat
136 population. Although the combined effect of domesticated
241 and feral stock, bats, rats, and birds is considerable,

136 241 the effect of the invertebrate fauna on the agricultural system is probably of greater significance.

136 245 Two of the most destructive pests are the rhinoceros beetle (Oryctes rhinoceros) and the coconut stick insect (Graeffea crouani), which have been responsible for substantial losses in coconut production. The rhinoceros beetle, which was first discovered on Tongatapu in December, 1961, possibly carried by man from Vava'u, has been the object of extensive, although as yet unsuccessful control programs. The coconut palm is also affected by other insects including the coconut flat moth (Agonoxena spp), and the coconut leaf miner (Promecotheca spp.).

Considerable damage to bananas is caused by the banana scab moth (Nicoleia octasema), the banana rust thrips (Chaetanophothrips orchidii), the nematode (Rodopholus similis), fruit flies (Atherigona orientalis and Dacus faciatus), and indirectly by a species of aphid (Pentalonia nigronervosa) which is responsible for the spread of bunchy-toptop virus (O'Connor, 1969). 136 241 [439] Fruit flies are also a problem in production of tomatoes and bell peppers, and have made Tongan citrus fruit unacceptable for the New Zealand market (Johansson, 1971: personal communication). Other invertebrates, such as leaf miners, moths, spider mites, and weevils, also cause damage to crops throughout Tongatapu.

245 439 Japan and provided the stimulus for the great increase in production. During 1967 and 1968 bananas surpassed copra as the number one export and many Tongan farmers planted large portions of their bush allotments with bananas in order to share in the considerable profits that were being made.

245 137 Unfortunately, in 1967 black-leaf-streak fungal disease (Mycosphaerella fijiensis) and bunchy-top virus led to a drastic reduction of banana production in Vava'u and Ha'apai, especially during the warmer months (Government of [242] Tonga, 1968a:4-5). By 1968, despite regular spraying programs conducted by the Department of Agriculture, bunchy top and black-leaf-streak broke out during the summer and [136] early fall on Tongatapu. Also a factor in the incipient decline in 1968 was a root nematode (Radopholus similis). [439] (Government of Tonga, 1969a:6). The black-leaf-streak was worse in 1969 and banana exports from Tongatapu dropped by 245 approximately 60 percent. Production again decreased in 1970 and 1971 and many farmers have become disenchanted and given up banana cultivation.

245 654 In an attempt to combat declining banana production, the Tonga Produce Board, in co-operation with the Department [457] of Agriculture and subsidized by Fruit Distributors Ltd.of [439] New Zealand (the firm which buys all of Tonga's present banana exports), approved a Banana Rehabilitation Scheme in 1971. This required growers to plant one acre or more of at

[TEXT CONTINUED ON PAGE 167]

245 439 Table 26 continued.

	Tongatapu	Tonga	Tonga
	No. of Cases* (1000)	No. of Cases* (1000)	Value ($T1000)
1969	191	209	680
1970	121	143	464
1971	81	118	358

*The size and dimension of banana cases have changed a number of times between 1951 and 1971.

Source: Tonga Produce Board Records.

245 654 least 500 plants with no intercropping, to control weeds to a reasonable standard, to practice desuckering and leaf-trimming, and to destroy bunchy-top affected plants. The [242] Agriculture Department's responsibilities were to apply [136] fertilizer at a rate of two pounds per plant per annum, to spray to control black-leaf-streak; to supply two percent DDT powder for control of the banana scab moth (Nacoleia octasema), and to keep a register of approved growers (Government of Tonga, 1972b:5-6). Despite these strong measures, in late 1971 most farmers were still reluctant to plant bananas and very few bush allotments had healthy banana plantations.

241 lablab to improve fallow vegetation as well as an increas-
242 ing use of inorganic fertilizers. In most cases, however,
[654] fertilizers were supplied by the Coconut Replanting Scheme or the Agricultural Department for use with coconuts, bananas, watermelons, or export vegetables, rarely for subsistence crops. The practices of mulching or use of animal manure were seldom employed.

241 The use of plows and disc harrows for the clearing
407 and preparation of land was common, and approximately one-half of the allotments have been plowed at one time or another. In most cases, however, plowing was done under
241 [654] the auspices of the Coconut Replanting Scheme. Commercial
[244] crops such as peanuts and watermelons were often grown on plowed land, but plowing for staple root crop production was uncommon.

[244] Most staple crops were well weeded, except for manioc and taro which seemed to compete successfully with weeds.
241 Commercial crops also seemed reasonably well cared for,
245 except in the case of pineapples which were often overrun by secondary growth and some banana plantations where proper desuckering was not practiced and diseased plants were poorly weeded.

241 Tree crops, however, received very little attention,
245 and coconut palms, both mature and replanted, were often
136 found overrun by secondary vegetation, burned around the bases during clearing, or left prey to rat, rhinoceros

241
245 beetle, and coconut stick insect predation, with little or no
[136] attempt at control. The damage caused by these pests, plus
[231] damage to young palms by fire and escaped or grazing live-
stock, was considerable.

241 Pest control, in general, was rare except for commer-
241 cial crops. Here the purchase of pesticides, fungicides,
654 and herbicides was usually borne or at least subsized by
the Agricultural Department or the Commodity Boards. In
the case of control of black-leaf-streak in bananas, mist-
ing oil was actually applied by Department of Agriculture
personnel.

241 Formal irrigation systems were rarely if ever found
312 on bush allotments, and simple wells were found on only
about one-tenth of all bush allotments. The use of water
for irrigating short term crops such as vegetables and
watermelons generally required carrying water in drums
from the town allotments or from nearby wells.

241 The effect of the "Green Revolution" seemed to be
242 almost non-existent. Although the Government Experimental
Farm has successfully grown a wide range of new plants such
as sorghum, soybeans, rice, and macadamia nuts, very few
have been integrated into traditional cropping sequences.
In some cases, garden vegetables such as tomatoes, capsicum
and bulb onions were planted, but these often required
additional non-traditional and expensive inputs such as
fertilizers, insecticides, fungicides, and irrigation.

/165 cont./

244 hindered in its growth by weeds or is eaten by horses and rats.

pinati = Peanut (Arachis hypogaea L.)

[137] This was also brought to Tonga by whites. The natives are fond of
[262] peanuts, but have so far paid little attention to its cultivation

245 moli = Orange, Lemon, Grapefruit, Tangerine (Citrus species)

[137] Some of these grew in the Archipelago even in olden times (grapefruit!) (434)

434. See G. Forster, loc. cit. V. p. 150;
J. Cook, Beschreibung...loc. cit. p. 236.

and were in part introduced by Europeans. These fruits, with the exception of lemons, are very popular among the Tongans. The moli are planted in the villages as well as on plantation lands, but there they mostly

[136] grow wild. On many islands a fruit fly has caused considerable damage to oranges.

[137] lesi = Papaya (Carica papaya L.)

was apparently introduced by Europeans, but a long time ago. Today it is widespread in the Archipelago, grows wild, but is also planted in

[262] bush land and sometimes in the villages. The natives are fond of the
[252] fruit (raw, cooked or steamed in the earth oven).

fekika = Malayan Apple (Eugenia malaccensis L.)

has probably been indigenous since ancient Tongan times. (435)

435. Perhaps Ellis means the Malayan apple when he says: "a fruit resembling an apple, which we never saw ripe" /quoted in English/ (W. Ellis, An authentic narrative...I. p. 89).

Some of the trees grow wild in the api 'uta, some are planted there.

[262] The Tongans love the fruit, but today, as in the past, it is not very important in their diet as a whole.

241 vi = (Spondias dulcis Forst.)

seems to be indigenous in Tonga and largely grows wild on plantation

[262] lands. The natives like the sweet fruits.

/166 cont./

244 [137] which were often brought to the Archipelago by Europeans, are planted in very small quantities on the Archipelago. The Tongans have scarcely been able to develop a liking for these useful plants, especially since they do not thrive as a result of the careless and neglectful way they are tended.

489 [361] Since the plantations are sometimes a considerable distance from the dwellings--in contrast to ancient Tongan times--the question of how to transport the harvest (which sometimes consists of many heavy 482 tubers) must be solved. The Tonga often still use old ways of carrying. 198 To transport coconuts, for example, they split the outer skin of the husk like splints, then tie into a bundle four or five splints and carry home on their shoulders two of these bundles by means of a coconut leaf stem (to which the bundles are attached, front and back). Harvested tubers, bananas, etc., are most often carried in the traditional coconut-leaf baskets (kato lou niu) hastily plaited on the plantations, which the natives /167/ likewise carry by means of a coconut leaf stalk (resting on their shoulders and notched so that they can hook the basket on). The coconut leaf stalk is stuck through the basket itself. Often, the handles of the farming tools (for example, huo spade, huo lafa-lafa) are used as carrying sticks. The horse, which was brought 492 to Tonga by Europeans, renders many natives important service as a [136] riding and pack animal, and some natives own two-wheel European carts [493] drawn by horses, which very much facilitate the transportation of even [179] abundant harvests to the villages.

241 Seen as a whole, Tongan agriculture seems to us little changed. 198 The traditional crops (supplemented by manioc) still form the basis 179 of the food of the inhabitants. The significance of cultivated plants introduced by Europeans is no more than "supplementary." The tools and methods of cultivation are also basically the same, though improvement and additions to the tools, as well as a certain lapse in

/168 cont./

441. In 1951, for example, more than 74,000 crates of bananas were exported to New Zealand from Tongatapu and Vava'u.

have been started.

For the Tongans, their old crops and agricultural methods suffice. As in old times, the individual scarcely specializes in certain crops. The same things are generally planted on all the islands. With their customary plantation work, to which the Tonga cling conservatively and which, after all, produces good yields for a limited amount of work, they are fully occupied, according to Tonga notions, and not much inclined readily to adopt proposals for innovations. Moreover, the plants introduced by Europeans were often set in suitable soil and, above all, the very careful maintenance that is often required does not seem feasible to most Tongans.

b) Animal Husbandry

In ancient Tonga, pigs and chickens (442)

442. See G. Forster, loc. cit. V. p. 150.

were the only domestic animals. Even today, they are still the most useful animals for the natives, even though, since the second half of the 18th century, Europeans have made numerous attempts to naturalize other domestic animals in Tonga. Only the horse was able to achieve a certain importance, since it proved very useful as riding, pack and draft animal for transportation to the distant plantations of some of the villagers. Cattle, goats and ducks are kept by only a few natives, and the importation of sheep and geese was quite unsuccessful. Cook probably brought the first dog to Tonga and it was brought from Fiji at approximately the same time. (443)

443. See J. Cook, Beschreibung...loc. cit. p. 233.

Today, one may probably come across dogs in all Tongan villages, though they are not regarded as regular domestic animals by most natives.

/168 cont./

231 [136] [177] Only a few Tongans were interested in the cats which Europeans imported.

The following survey may give an idea of the numerical proportion of the individual domestic animals. The data were obtained in April 1952 in 'Uiha/'Uiha, a typical village of the more remote islands, and in May 1952 in Fungamisi/Vava'u, a village adjacent to the rather large seaport of Neiafu:

231 184 422 [126]

/169/'UIHA:

Domestic animals (including young animals)	In possession of all 99 households checked	per household
Pigs	917	0(444) --35
Chickens	1095	0(445) --54
Horses	54	0 -- 3 (446)
Cattle	1	0 -- 1
Goats	31	0 -- 5
Ducks	33	0 --10

FUNGAMISI:

Domestic animals (including young animals)	In possession of all 42 households checked	per household
Pigs	109	0(447) --20
Chickens	547	0(448) --50
Horses	38	0 -- 4 (449)
Cattle	14	0 -- 4
Goats	6	0 -- 3
Ducks	21	0 --10

444. Of the 99 households only three have no pigs.

445. Of the 99 households 13 have no chickens.

446. Only one household has three horses.

447. Nineteen households have no pigs.

448. Nine households have no chickens.

449. Only one household has four horses.

/169 cont./

231 184 According to these figures, pigs and chickens, the domestic animals of ancient Tonga, occur most frequently in 'Uiha and Fungamisi. The difference with respect to the rest of the domestic animals is more striking in 'Uiha than in Fungamisi. In the latter village, its 231 184 432 nearness to the seaport of Neiafu is a factor; the natives probably feel it is more profitable to use their coconuts for copra production (245) (the copra receiving station of the government is not far from the village) than to breed pigs more extensively, especially since the latter can be replaced by corned beef and salted meat which is easily obtainable in Neiafu. The cattle raised in Fungamisi can be profitably sold to merchants in Neiafu.

231 In general, there is no intensive animal husbandry in Tonga, such as the European is accustomed to. Stalls and fenced-in areas are (272) (262) (239) practically unknown. /170/ Milk, eggs and manure are not used. The following survey may give an idea of animal husbandry in Tonga:

Pig:

231 136 This domestic animal of ancient Tonga no longer exists in its original form. Sailors, missionaries, other whites living in Tonga, as well as members of the Tongan government have, in the course of time, brought a number of pigs of various strains to Tonga. This seems to have improved the old Tongan breed of pig which was probably smaller. A clear racial identification is no longer possible because of the various crossbreeds.

231 262 574 Pork is by no means a daily food; the natives usually slaughter the animals only for festivals and other special occasions (for example, a visit of a member of the royal family), just as was customary among commoners in the past. (450)

(113) 450. See W. Waldegrave, Extracts from a private journal.../cited in English/ p. 187.

/170 cont./

231
[232] 453. See J. J. Labilladière, Relation du Voyage... /Account of the voyage.../ II. p. 149.

and do so today in order to obtain more tender meat.

Chicken:

231 The--still mostly semi-wild--chickens have approximately the
235 same importance in the economy of the commoners as in older times.
[178] They too are not part of the daily food, but constitute the "reserve"
[262] for various (festive) occasions /171/ when a pig need not be slaughtered and one can make do with a chicken. Most of the nobles today act in the same way, in contrast to past times. (454)

454. See, for example, W. Waldegrave, Extracts... p. 187.

Chickens are free on village properties and also on the plantations. They usually roost in trees. Thay are quite timid, especially on the plantations. (There, for feeding, they are still sometimes called out of thickets with the conch shell.) Chickens are fed the grated meat of ripe coconuts; but they find a large part of their necessary food by themselves. The natives generally pay little
[262] attention to their eggs which they lay in the bush and in hidden places in the village.

Horse:

231 Horses were repeatedly brought to Tonga by Europeans. But it has
492 only been in the last eight decades that the Tongans, to an increasing
[136] extent, realized how useful these animals can be to bridge the often great distances to the plantations. The natives have become quite skillfull riders, and especially the young often race over the bad
[541] roads in the bush land at a bold gallop. Impromptu horse races are quite popular in some places (for example, on Tongatapu and Vava'u). The natives ride without a saddle or, instead, use an old European sack or a bundle of dried banana leaves. On such pads they frequently

/171 cont./

231 492 transport to the village their tubers, coconuts and other plantation products in a sack or coconut-leaf basket that lies crosswise in front of the rider. The owners of European two-wheel carts (455)

493 177 422 455. In the various villages, some one-eighth or one-fourth of the households own such carts. can bring heavy loads home with their horses; the harness consists of a leather collar, a wooden back yoke /?/ /Ruckenbugel/, iron head harness and lines; a twig serves as a whip. Sometimes they also slaughter horses which they like to eat occasionally.

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231 The Tongan makes horse-raising very comfortable for himself. There are no stalls or enclosures. He tethers his horse near his house in the village, so that it can graze, or he ties it to a tree on the plantation where it can find its food. Water shortage makes it necessary to lead horses specially to watering places, which is not always easy. On the plantations horses often cause considerable damage, especially if they break away. The Tongan does not know how to look after horses and groom them. He often continues to use them as riding and pack animals even when they have open wounds on their backs as a result of improper treatment.

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439 The horses imported mostly from Australia and New Zealand are said to have decreased after a few generations, probably because of changed living conditions.

Cow:

136 This domestic animal repeatedly introduced to Tonga by whites has to this day not become prevalent or of importance on the islands. Very few natives keep cattle, which are chiefly thought of as furnishing meat; cows are not milked. The animals are tethered on a rope on the plantations, so that they can find their food within a circumscribed area. Sometimes the natives lead them to a watering place, but they also leave them a few days or even weeks in one place,

/171 cont./

231 without bothering about them, so that some cattle were near /172/
death from thirst or actually died. On Nomuka there is a group
[496] (kautaha) of Tongans who jointly own a herd of some 20 cattle that
are left on the usually unoccupied neighboring island of Nomuka Iki
and live there half-wild without any particular care; if the men
want to slaughter one of these animals they usually shoot it.

Goat:

In goats, too, which were brought to the Archipelago, the Tongans so far have not shown much more interest. The natives who own such animals tether them on their property or tie them to a tree on their
[262] plantations, so that they can find their own food. Only the meat of
goats is used.

Duck:

231 A few natives on some of the islands keep ducks, which have also
235 been introduced in Tonga by Europeans. Aside from the slight
[136] interest of the Tongans for these animals in general, it is the lack
of running and still fresh water which very much prevents a widespread
occurrence of ducks in the Archipelago.

Dog:

231 The number of Tongans who regard a dog as their property and give
it food is small. Nevertheless, there are dogs in all villages, the
majority of which are very skinny, neglected mixtures of various
breeds. They usually have to seek their own food, and they suffer,
especially in times of drought. The villagers, most of whom treat
their dogs brutally, nevertheless like to use them to keep watch over
[262] straying pigs. Seldom are better fed dogs slaughtered to be eaten
(as they were even a century and a half ago). (465)

456. See J. Martin, loc. cit. I. p. 265.

/172 cont./

Cat:

231 [136] Cats, which were likewise brought to the Archipelago by whites, are kept only now and then by natives to protect their supplies from mice. In the bush, wild cats occur now and then.

[178] To sum up, we may say about animal husbandry that, as in old times, there is scarcely a Tongan household without domestic animals and that, as in those days, the pig and the chicken are the most important domestic animals for the natives. On the other hand, of course, the limited size of the islands, the small size of the individual property and the lack of water are reasons why no more extensive animal-breeding, especially of cattle, arose. On the other 231 hand, the reason why the change from their former circumstances is 178 but slight may be found in the Tongans themselves, who apparently feel no necessity to alter their traditional economic system which is quite sufficient for their needs; in their raising of domestic animals--which might almost be called extensive--/173/ they leave a great deal to chance and shy away from the trouble which profitable pig and chicken raising, and especially systematic cattle raising (which is to a small extent possible even on 8¼ acres) entails. The [262] Tongans do not recognize the advantage of a better meat supply and the [272] use of manure, or else these advantages do not seem to them worth- [237] while, and the prospect of milk is not at all tempting for most of them, (457)

[439] 457. Imported, sweetened condensed milk has had a limited distribution in the Archipelago, which is probably due to the fact that the Tongans are very fond of sweets and that, in their eyes, this canned milk is very different from fresh cow's milk.

just as they do not care for eggs.

245 retards the growth and development of the plant, and terminates fruit production.

[136] Banana scab moth, most destructive during its larval stage, may cause damage ranging from simple fruit discoloration to total [242] destruction (Plate 4, p. 74). DDT, which is frequently used to combat scab moth, has been ineffective in annihilating the pest.

241 The combined effect of these three diseases have reduced 245 internationally marketable banana production by nearly 1.5 million [433] dollars, representing approximately 30 percent of total agricultural [439] export production since 1967. Farmers are increasingly hesitant to initiate large scale banana production, unless guaranteed assistance in combating disease and plant destruction.

245 Survey interviews also attributed decreasing banana produc- 505 tion to inadequate shipping facilities. Frequently, harvested bananas are placed on a dock to await the arrival of transport 245 vessels destined for overseas markets. During this time, the fruit 439 becomes over-ripe, falling below export quality. As a consequence, [435] fruit originally priced up to $1.90 per case may be sold for as little as 40 cents. Because of this potential low cash return, 245 many interviewed farmers stated that large scale banana production was an unwise economic risk.

244 Commercial production of melons, especially watermelons, is also hindered by the inadequate scheduling of transport facilities to [505] overseas markets. Melons are also produced for Tongan markets, but [438] frequently earn only low prices, even when out of season.
[435] A [Because of poor quality of original reproductions, plates have not been marked for a Category-- Analyst.]

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

249 [241] Of the miscellaneous crops produced, two are particularly noteworthy--sugar cane and peanuts. Sugar cane is frequently produced on the farms of Vava'u, although limited cultivation may be found [257] throughout the nation. Sugar for domestic consumption is not produced in the Kingdom, and mature cane is sold in small unprocessed sticks, much like candy.

244 Peanuts have a great potential for expanded production in Tonga. The presence of a domestic market for peanuts is apparent throughout the Kingdom, and the potential dietary value of this product should be recognized. Employees within the Tongan Ministry of Agriculture blame the lack of extensive peanut production on the laziness of individual farmers. On the other hand, farmers refuse to plant peanuts without guaranteed aid for the necessary machinery and fertilizers.

245 [439] [241] Coconut is the best example of long-term cash cropping. Products of the palm, principally copra, equal approximately 85 percent of Tonga's total international export. Cultivation of palms is conducted independently of the food crop planting cycle. If well cared for, young palms will reach initial production four to six years after planting, although seven to nine years was frequently reported in interviews as being the time required prior to production. The coconut palm will produce for up to 70 years, with 50 to 60 years [136] being the norm. However, rats and beetle damage claim up to 25 percent of all potential produce.

241 245 Palms are often not planted in an orderly fashion on a typical 'api, being planted in a seemingly random distribution. An

245 As coconut palm cultivation increases toward the point of monoculture, the potential for destruction of croppings by pests [136] also increases. Two such pests are of particular significance in Tonga--rats and the rhinoceros beetle. Rats, alone, account for a loss of approximately 20 percent of the total coconut crop, annually. Fallow vegetation, which is left growing around planted palms, provides an excellent habitat for rats, and is conducive to rat breeding. Despite efforts by the Ministry of Agriculture to encourage farmers to reduce this cover, Tongan farmers continue to be uncooperative. Damage to young nuts is not frequent, and occasionally a palm will lose its entire crop to this type of destruction. Plate 5 (p. 81) illustrates coconuts which have been destroyed by rats. The most reliable identification of rat damage is a hole gnawed through the coconut husk.

There are two procedures which have been proven to be effective in preventing, or at least curtailing, rat destruction. The removal of cover vegetation effectively discourages large numbers of [414] rats from living in close proximity to the palms. Secondly, fastening metal or plastic strips around the trunk of a palm prevents rats from climbing to the nuts. (This technique is most effective on palm trunks perpendicular to the ground, as opposed to those which lean to any excess.) Agricultural specialists in Tonga reported the use of metal strips to be the most effective method of combating rat damage (Hougland 1974). However, of the farmers interviewed, less [439] than one percent used this technique. Although the strips are cheap (8 to 15 cents apiece) and some varieties are guaranteed to last the

[Because of poor quality of original reproduction, plate has not been marked for a Category--Analyst.]

245 life of the palm, the initial cash outlay deters increased usage.
[435] Farmers believe that the initial outlay of 8 to 15 dollars per hundred palms is excessive, and do not understand the concept of long-term investment. Agricultural extension workers claim that a more realistic reason for insufficient use of the strips is laziness of the Tongan farmer. Only the Mormon plantation and two 'apis were observed to be using the preventive strips. Plate 6A illustrates the simplicity of the procedure.

245 Another pest destructive to coconut production in Tonga is
136 the rhinoceros beetle. This beetle has only recently become a major threat, and was largely unknown in the islands, until the 1950s and
245 1960s. Plate 7B illustrates the characteristic angular leaf damage inflicted on the palm by this insect, which reduces the photosynthetic area of the plant, and subsequently the production potential of the palm. The most frequently noted method of control
[136] consists of a mound of sawdust into which are placed the eggs or larva of one of several predator insects, usually mites or click beetle (Plate 8)C. Sawdust is a favorable breeding ground for the predator insects, as well as for the rhinoceros beetle, which is attracted to the sawdust pile. Subsequently, the larva of the mite or click beetle destroys the rhinoceros larva, with up to 100 percent efficiency. Despite the effectiveness of this technique, it is not extensively used within the Kingdom. The procedure was observed being used most frequently in Vava'u, only occasionally in Ha'apai, and not at all in Tongatapu.

A,B,C [Because of poor quality of original reproductions, plates have not been marked for a Category--Analyst.]

[TEXT CONTINUED ON PAGE 88]

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Fishing activity is often not considered part of the agricultural sector of an economy. However, in Tonga fishing represents a significant cash input to the local agricultural base. Of the total survey sample, over 15 percent of those questioned indicated that they derived some part of the household cash income from fishing. The Tongan government obviously considers fishing to be of significant value to the national economy, in that it includes evaluations of fishing catch and sale within the annual reports, and operates one major fishing vessel, the Ekiaki. This ship is of modern construction and contains some refrigeration and pre-processing facilities. In 1973, the Ekiaki landed a total of 203,243 pounds of fish, representing a catch percentage (catch per 100 hooks) slightly better than Korean and Chinese operations in the region. This total catch was smaller than anticipated, due to mechanical breakdowns and the lack of trained operation personnel.

Tongan waters are a largely untapped source of food, including such fish species as tuna, bill-fish, and shark (Report of the Minister of Agriculture 1973, p. 30). In 1973, sale of fish through the Vuna market equaled over $15,000, or 120,000 pounds. However, demand for fish in Nuku'alofa far excelled this amount. Personal observations evidenced that on those days when fish is to be sold, crowds of consumers wait hours before the market opens.

Despite the fact that domestic demand for fish is unsaturated, 40 percent of the Ekiaki's total catch, for the year 1973, was

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deflected into pockets made at corners where they go in and cannot come out again.

3.—Net Fishing.

If nowadays "net fishing" is not such a widespread Tongan method of catching fish anymore, then at least it must have been very popular approximately 75 to 100 years ago, as there are nets in existence made of *olonga* (*Tonchaedia*, resembling *ramie*) reputed to be over 100 years old and still in good condition. A kind of Ficus was also used for making such nets.

(a) *Kupenga fonu* (Turtle Netting). Netting of turtles is mostly carried out in the Ha'apai group where vast areas with prolific growth of seaweeds are found. Shallow water and much seaweed are known as the home of the turtles and this then is the ideal place for turtle fishing. A fisherman having located an area of seaweed between the small uninhabited islands, drops his net in a straight line at right angle to the flowing current and returns home. After two days he goes back to retrieve his net and usually finds turtles of all sizes caught in the net. In a 50 feet by 12 feet net as many as 10 turtles can be expected and often more, depending on the length and width of the net and the area where it is dropped. These types of nets are usually locally made out of imported seine twine.

(b) *Pa 'Otule* is the netting of the *'otule*. This is a species of fish very similar to the tuna but not more than twenty-four inches long. This species moves about in schools and prefers a sandy beach as a home, for instance the beach of Pangai or Lifuka. In spite of the activities of the island cutters and sailing vessels, the *'otule* are not scared away from beaches to look for shelter elsewhere. Thus, the netting of the *'otule* is perhaps the easiest of all methods of fishing. A fisherman looking for a school of *'otule* has no difficulty whatsoever in locating them from ashore. He paddles his canoe closely direct to them and drops his 12 feet by 6 feet net in front of the school. He then shifts his canoe behind them and makes a big splash by either rocking his canoe or hitting the water with a long stick. The school, noticing this, dash and escapes with fright in the opposite direction and as many as forty are caught in the

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little net. The fisherman hauls his net and retires. Sometimes a fisherman swims with his net, not requiring a canoe. 226 [481]

(c) *Huluhengi* is and driving of fish in the night with torches towards a net.

(d) *Finaki* is an old way of catching fish by means of traps of the same name. *Finaki* traps are elaborate affairs made of coconut roots or wire netting.

(e) *Ta 'ulukau. 'Ulukau* is the name of a species of fish which has characteristics similar to the *'atu*. They roam in schools and come to rest near certain beaches of the Northern groups. Netting them there is a method widely used. 196 [825] 226

(f) *Fakamamaha.* The principles of this method are exactly the same as those of the *pola*, only it is done with an ordinary fish net with weights attached to the bottom. It floats on the surface thus requiring no men to hold the net up as is done with the *pola*. At high tide the net, of about 120 yards in length, is placed in such a position as to enclose an area in a semicircular fashion against the beach. At low tide the fish on returning to deep water cannot get through and so are forced to find shelter in small pools where they are easily caught with spears and *pulou*, that is covering the fish with a net.

(g) *Pulou* is the circular fish net, approximately five yards in radius, at the edges of which lead or zinc weights are attached. A fisherman using the *pulou* carries it on his shoulder, the net, of course, being folded in a way ready for action at short notice. The fisherman wades out knee-deep in the water and looks for fish. The trick of this method is to know the signs in the water of the presence of a school and another is, to approach into close range without frightening the fish away. If one does not master these two tricks, a good collection of corals and seaweeds may be the only reward. When the shoal is located, either coming or returning with the tide, the fisherman crouches to disguise his human form, perhaps hoping to exhibit the appearance of rock. At the same time the net automatically comes to a position ready for throwing. If the school travels towards him, good aim and a perfect throw may finish the day's fishing at once. On the other hand, if the school is moving away, [227]

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225 towed by the whale for miles, sometimes at a speed of twenty miles an hour. After thirty minutes or so, the whale, having spent a lot of energy, comes to the surface as its speed gradually reduces. The whalers, knowing that the animal is nearly worn out with exhaustion, lessen the distance between the boat and the whale by pulling in the harpoon rope to close up for the kill. This being done, the mouth of the whale is sown up to prevent the water entering the body [262] and thus sinking the catch. It is then towed ashore to be carved up for meat, oil not being exported.

7.—Other Seafood.

226 (a) *Ala Kuka.* Small crabs known as *kuka*, of three [825] cubic inches in all, is a most relished seafood. These crea- [262] tures inhabit the sandflat where mangrove trees grow but the Tongans do not bother about them until full moon high tide (spring tide). When the tide goes out these crabs come up above their burrows, being filled with water to the top. Thousands can be found under the mangrove trees where they are easily caught and bagged by the hundreds.

[196] (b) *Uku Vasua. Vasua* (*Tridacna*) can be found in all groups in the Kingdom. Great care should be taken not to get anything between its shells as it is going to be a certain [262] loss. It is a popular seafood picked up from some depths by divers.

(c) *Ala To'o* is the picking up of a small round whitish sea shellfish living in colonies on the sandflats.

(d) *Ala Kuku* is the picking of elongated reddish sea shellfish, living amongst rocks and seaweeds.

[262] (e) *Ala Muli'one.* Seaslug, although leathery, has always been a seafood of the Tongans. It is very easy to find on the sand flat all over the northern side of Tongatapu and around the outlying islands of the other groups.

[262] (f) *Fua Kolukalu.* Jellyfish is another seafood much relished by many Tongans. In Tongatapu the lagoon is the only place where jellyfish is found in abundance.

(g) *Uku 'Uo* (lobster fishing). Lobsters are caught by spear-divers, mostly at night during high tide. At low tide lobsters stay in their hiding places under the rocks and at high tide they go up to the top of the reef to search for food.

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At night the torch is lit and divers go under and spear them, one by one. 226

(h) *Shellfish ('Elili, Topulangi, Kaloa'a, Tavo'amanu).* These, and many others, are sought after by all Tongans. [825] *'Elili,* much larger in size than *topulangi,* are found on the rocks of the southern coast. They live on rocks where the waves break. Unless it is very calm, it is almost impossible to get them. *Topulangi* can be found on the reefs and sand-flats the same as *kaloa'a,* and *tava'amanu.*

(i) *Uku Tukumisi* (sea-egg fishing). Sea-eggs are much relished by all Tongans. [262] On the sand-flats of the outlying islands of the groups, *tukumisi* can be easily collected. Divers usually take their boat out to such areas of seaweeds where they are likely to be found and dive to a depth of six feet to collect them.

(j) *Tauhele Tolitoli* (crab trapping). Big crabs known as *tolitoli* are found on the reefs as well as on the sand-flats. In the water, divers usually spear them and on the sand-flats, where they live in burrows, they are often caught by setting traps at the mouth of the burrow. The legs of these crabs extend as much as twelve inches and more in length. *Tupa* is also trapped by this method although much smaller in size than the *tolitoli.*

8.—Poisonous Fish.

Only a few fish species are reported to be poisonous, for instance *sokisoki* and *te'ete'e.* Eating these causes immediate death. 825 *Ulukau* is said to be poisonous except in some regions, like Talau in Vava'u.

9.—Descriptive List of Common Tongan Fish.

Fish Names. There is a wide variation in fish names, as far as vernacular is concerned, in the Pacific area, Not only the differences in Melanesia, Polynesia, and Micronesia, but also the peculiar way of naming fish differently in the adult and in the young stage even if they belong to the same species. 825 226 136

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	Tongan name of fish.	Habitat			Fishing method						Period of the year	Habit		Grade	Type of fish.
		Reef	Sandflat	Deepsea	Spear	Net	Trap	Line	Community	Other		In schools	Solitary		
1.	Menenga	X			X									1	Parrot
2.	Sikatoki	X			X									1	Parrot
3.	Mamana	X													Parrot
4.	Mesi	X			X									3	Parrot
5.	Alealohihina	X			X										Parrot
6.	Menengakalia	X													Parrot
7.	Humu	X													Rainbowfish Trigger
8.	Humu moana	X													Trigger
9.	Ngatala	X			X			X						1	Cod
10.	Tonukuli	X			X			X						1	Cod
11.	Ulutaki	X			X										Cod
12.	Ume poto	X			X										Leather-jacket
13.	Ume vale	X			X										Leather-jacket
14.	Ume lei	X			X										Leather-jacket
15.	Telengi	X			X									5	Leather-jacket
16.	Afali														
17.	Alongo														
18.	Pone	X			X										Leather-jacket
19.	Manini	X			X	X								5	
20.	Ta'a	X			X			X						1	
21.	Matatula	X			X									2	
22.	Telekihi	X			X									3	

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	Tongan name of fish.	Habitat			Fishing method						Period of the year	Habit		Grade	Type of Fish.
		Reef	Sandflat	Deepsea	Spear	Net	Trap	Line	Community	Other		In schools	Solitary		
23.	Telekihiloa	X		.	X										
24.	Kavakava moana														
25.	Sifisifi	X			X									3	Sailfish
26.	Mulumutu														
27.	Atu		X	X				X				X		1	Tuna
28.	Tonu			X	X			X						2	Groper
29.	Koango			X			X								Snapper
30.	'Uhu			X			X							1	
31.	Kiokio			X			X							5	
32.	'Anga			X											Shark
33.	Tutu'a														
34.	Ngatala	X													
35.	Sokiaoki	X													
36.	Te'ete'e	X													
37.	Momoa	X					X								Foxfish
38.	Matu	X	X				X							1	
39.	Sipesipe	X	X				X							1	
40.	Tamatang	X	X				X								
41.	Kavakava	X	X				X							6	ger. Scaven-
42.	Te'efe	X	X				X								
43.	Kanaha	X	X				X								Mullet
44.	Huli														
45.	Ulukau		X												
46.	'Otaha		X			X	X						X		Tuna or Herring
47.	Toke		X												Eel
48.	Matacle'i		X												Small Shark
49.	Lupo		X	X			X	X						1	Trevelli-
50.	Fai			X			X							4	Sting-
51.	Fata						X								
52.	O														
53.	Ava														Surmul-
54.	Veta		X					X							let